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Original Articles

THE CEREBRAL CENTERS FOR TASTE AND SMELL AND THE UNCINATE GROUP OF FITS,

BASED ON THE STUDY OF A CASE OF TUMOR OF THE TEMPORAL LOBE WITH NECROPSY.*

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PHILADELPHIA.

The case which forms the text of this article was first studied by me in April, 1904, although I had received communications regarding the patient from her husband, a journalist, and had seen her once or twice before this date.

The patient was a married woman, aged 34 at the time of my first examination. She was the daughter of first cousins. No history of epilepsy in the family was known. One sister had chorea when a child, but entirely recovered and grew to womanhood without any further evidence of nervousness. Another sister has had some sort of spasm at intervals. The patient had had fair health up to the age of 30 years, although she had suffered considerably from headache at irregular, but somewhat frequent intervals from early childhood. Between one and two years before coming under observation her headaches had become rather severe, the pain being referred chiefly to the forehead, but sometimes affecting the back of the head. The patient stated that she remembered when a child of having had a spell or period of dizziness, which lasted perhaps a week and was of uncertain origin. In 1899, about a year after the birth of her first child, she began to have slight seizures of a peculiar character. In these spells she was said to have nausea, to be somewhat confused, and to articulate indistinctly or incoherently. They usually lasted about half a minute. She did not at first become unconscious in them. In October, 1903, she became unconscious in one of her seizures. The spells without unconsciousness or spasm which she had continued to have at intervals from 1899 until 1903 gradually became more frequent. She sometimes had several daily, and then a week might elapse without any. In these seizures her face would turn of an ashen hue and her expression become drawn. The convulsion which occurred in October was preceded or ushered in by the phenomena of one of her usual seizures. In this attack some spasm on the right side of the face was noted. She slobbered and smiled as she recovered from this attack, and for a few minutes after recovery could not recollect anything. She did not pass into a sleep after this and other attacks, nor did she bite her tongue in any of them. A week or two after this convulsion she began again to have her original form of seizure.

Shortly after the patient first came under my observation in April, 1904, I made several careful examinations of her. Later I saw her at intervals of several weeks or months, occasionally examining her as regards her special senses, sensation, motility, reflexes and mental state. Her husband, who was a good observer, from time to time until her death, reported on her condition to me, furnishing special data with regard to her seizures. I did not see her, however, for about six months before her death. The patient, in describing her attacks in the spring of 1904, said that she had a sensation of some kind in the region of the stomach. This was soon followed by a sensation of taste and then of smell. These were of a definite character in that they recurred in the same way. She could not tell what the taste or smell was, that is she was not able to refer it to any particular variety of taste or smell, although she sometimes thought that she was just about to be able to do this. She thought that the smell was somewhat like that of a flower, but she could not name the flower. These sensations were in some instances accompanied by smacking of the lips, or as her husband expressed it, clapping of the lips and champing or chewing movements. Immediately after these gustatory and olfactory aura, she became more or less dazed, this confusion being worse at times; in some instances she would keep right on talking through the spell.

Examination for taste showed that on the back of the tongue she was able to taste correctly. In the chorda tympani area of the tongue the patient said in response to the test that she tasted something, but could not distinguish the quality or flavor of what she tasted. Salt was appreciated as sour or acid on both sides; sweet was not recognized as such, and bitter substances gave the same taste as sweet. The tests were made with care, with washings of the mouth and with intervals between them, so as not to cause confusion by the mingling of different substances.

Smell was retained. At one of her visits, May 6, 1904, she gave an interesting statement with regard to her ability to smell. She said that a day or two before she had been out in the woods and had tried to smell some little green bunches of leaves, which she did not know by sight; by smelling them she thought they were sassafras but was not sure of it. She picked several flowers and could smell their fragrance. In cooking she could smell very well, distinguishing the different substances which were being cooked. Examination of her nostrils for motor power by having her sniff with them, with or without the examiner's finger on them, showed undoubtedly that more force was exerted by the right nostril than by the left. She spontaneously spoke of this difference. She said that she could sniff much better with the right than with the left side of the nose. The left nostril seemed smaller and thinner than the right. The tongue was protruded in the median line, was not atrophied, and had no fibrillary tremor. All its voluntary movements could be performed. The left half of the tongue seemed to be a little smaller and flatter than the right. The left pupil was slightly larger than the right; both pupils responded to light and in accommodation. No nystagmus was present and no external ocular palsies.

Before coming under my care this patient had been seen by Dr. C. A. Oliver of Philadelphia, who has kindly furnished me with the following report: "At 14 years of age the patient accidentally discovered that the vision of her left eye was not so good as its fellow. At that time, glasses, which were worn comfortably for six years, were ordered by a well-known ophthalmologist. In 1900 she saw another ophthalmologist who operated on the left externus, and two years later on the right externus. The exterior eye muscles were exercised and iodid of potassium was given. When first seen by me, on Dec. 2, 1903, the patient had normal

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vision for both form and color in each eye, the right eye being far-sighted and astigmatic and the left eye near-sighted and astigmatic. The left pupil was the larger (4½ mm.), while that of the right was 3 mm. in size. The irides were equally and freely mobile to light stimuli, accommodation and convergence. The actions of the exterior ocular muscles were good in every direction with proper muscle equilibrium. The visual fields were normal. The patient's husband informed me that the patient had had epileptic seizures with olfactory aura, and that odors tended to give rise to the 'spells.' A diagnosis of focal epilepsy and antimetropia (the ophthalmic signs and symptoms being negative), with a suspicion of a focal cerebral lesion, which was either a tumor or a localized meningitis, was made. It was also noted that the patient apparently improved after her tenotomies."

In May, 1904, careful examinations were made for sensation, motility and reflexes in all parts of the body, the results being almost entirely negative. Movements of the muscles supplied by the motor division of the trigeminus and by the seventh nerve, with the exception of one nostril, as above indicated, were not impaired. No ataxia of station or gait was present and no paralysis and no paresis or ataxia of the extremities. Sensation was everywhere preserved. The reflexes also were preserved; the knee jerks, however, were depressed, more markedly on the left. This may have been due to the use of bromids, which had been administered for several months. The bowels and bladder were unaffected. The general condition of the patient was good. Her mentality was fully retained and no aphasia was present. The patient was perhaps at times a little apathetic, but on the whole was in good spirits. She seemed at times in a state of dreaminess.

My last examination, which was made in August, 1907, never showed any paralysis, disorder of sensation nor hemianopsia. Her husband stated that she was never paralysed in her face, arm, leg or in any part of her body. Inquiring with regard to hemianopsia, he said that she never appeared to be blind or partially so, either to the right or to the left. She did not run up against things to either side. The only visual phenomenon which he observed was that she said if she looked a certain way to one side she felt as though a spell were coming on.

Under the influence of a combination of sodium iodid, sodium bromid, Fowler's solution and fluid extract of conium, the number of the patient's attacks considerably decreased. She continued, however, to have them at varying intervals of days, weeks or months as long as she remained under my direct observation, which was during 1904 and 1905. Intelligent reports of her attacks and of her condition during the intervals were made by her husband during this time, and for the record of her condition for a year before her death I am entirely dependent on these reports.

Her husband reported that in August, 1906, she began to run down and that her speech was incoherent, with decided aphasia. Whether this was in a technical sense aphasia is doubtful. The patient evidently had some difficulty in remembering words and some slowness and hesitation of speech. Her general health declined so that her weight dropped from 140 to 119 pounds. She came home from her vacation in the summer a physical and almost a mental wreck. She would get out of bed at night unable to tell which way to go to the door. In September, 1906, all medicine was stopped and her old spells began to be more severe and frequent, but she recovered her general tone and her speech. When she was what was termed "aphasic" she would forget words. She would come into a room, for instance, saying "Where are the——" and after some hesitation she would say, "Oh, I mean the scissors." At other times she would substitute wrong words. The patient recovered sufficiently from this so that one would hardly notice any difference between her speech and that of a person who was slightly forgetful of words. She went along about the same until March, 1907. The spells usually occurred in the early morning and her husband would be awakened by a clapping of her lips. One morning on hearing this noise he spoke to and touched the patient, who then went into a general convulsion.

She was last seen by me in August, 1907. She was at this time very sleepy and drowsy. At the time of her visit to my office she lay down on the sofa and went to sleep. She had at times been taking two or three doses of bromid daily. Little change occurred in her condition until about December

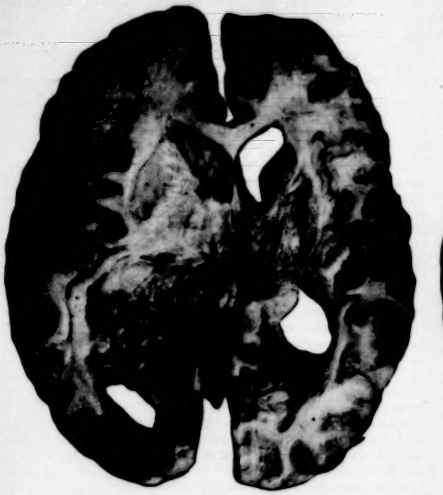

Fig. 1.—Photograph of a section at the upper part of the basal ganglia, showing the tumor invading the left thalamus, filling the front part of the posterior horn of the lateral ventricle and implicating the extreme anterior part of the median aspect of the occipital lobe.

Fig. 2.—Photograph of a section at a level of about ¼ of an inch below that represented in Figure 1, showing the tumor extending to the anterior and median surfaces of the occipital lobe and involving almost all of the lenticula.

26 or 27, about two months before her death. She was taken at this time with what was said to be influenza and she was treated for such principally with remedies like phenacetin, quinin, strychnin, etc. All bromids were stopped at this time. Between January 22 and the date of her death, February 22, she had perhaps six of the following peculiar spells: She would throw up her hands as if in great pain or distress, but could not tell where, except that at the same time she would say taat the left side of her body felt numb or asleep or dead. She was not unconscious, but the feelings and condition would last two or three minutes. The morning before her death she had a severe spell. The morning she died she lapsed into unconsciousness and never recovered.

Necropsy having been permitted, Dr. Samuel Leopold of the clinical and pathologic staffs of the neurologic service of the University of Pennsylvania made a postmortem examination and obtained the brain. The specimen was placed in the hands of Dr. William G. Spiller for investigation in the laboratory of neuropathology of the University of Pennsylvania. The following report was made by Dr. Spiller: "The tumor is on the left side of the brain. The left cerebral hemisphere is much larger than the right. In a transverse section at the level of the upper part of the callosum the tumor fills the lateral ventricle above the thalamus, extending to the roof of the ventricle and cutting off the anterior part of the ventricle above the head of the caudate nucleus from the posterior part of the ventricle. The tumor has the appearance of a glioma, is infiltrating and gelatinous in places. The upper part of the thalamus is entirely replaced by it. At a little lower level, where the anterior and posterior limbs of the internal capsule are well formed, the tumor invades the thalamus, fills the front part of the posterior horn of the lateral ventricle, implicates the extreme anterior part of the median aspect of the occipital lobe, distorts the outer wall of the posterior horn of the lateral ventricle without extending into the temporal lobe, and involves the posterior part of the posterior limb of the internal capsule (Fig. 1) and a large part of the lenticula.

At a level about one-fourth of an inch lower than the one above described the tumor extends to the anterior median surface of the occipital lobe, involves almost all of the lenticula, but does not extend into the white matter of the temporal lobe nor into the head of the caudatum, nor into the foot of the cerebral peduncle, which just below this level is beginning to form (Fig. 2).

At a level about one-fourth of an inch still lower, where the cerebral peduncle is well formed, the tumor fills all of the anterior and median portions of the temporal lobe (uncinate and hippocampal convolutions) and the middle part of the lobe, but leaves the occipital lobe intact except in its extreme anterior part, and does not invade the lateral aspect of the temporal lobe or its subcortical white matter (Fig. 3). The tumor extends as a pointed process of brain tissue over the left cerebral peduncle (Fig. 4) this being the only portion of the tumor appearing on the surface."

It will be noted in the description of the position and extent of the lesion in this case, that it involved the uncinate, hippocampal, and the fourth temporal convolutions and their subcortical white matter, but did not extend further into the temporal lobe. It is probable that the gustatory and olfactory discharges were due to the implication of the cortex in these regions. Of course, it cannot be overlooked that the tumor extended considerably beyond the lower temporal region, invading the anterior part of the occipital lobe and destroying large portions of the lenticula and the thalamus. But with our knowlege of previous cases, and with the experimental evidence regarding the cortical localizations of taste and smell, the findings in this case may be regarded as confirmative of the view that the olfactory and gustatory centers are located in the inferior portion of the temporal lobe. In fact, little doubt exists as to olfactory cortical localization, but the case is not the same with regard to the centers for taste. It may, I think, eventually be demonstrated that the hippocampal convolution is the chief cortical area for taste.

So far as the recorded notes show, this patient had no visual phenomena, with the exception that when she looked in a certain direction she felt as if an attack were coming on. No sensations of light, and no hemianopsia appear to have been present. The sensory

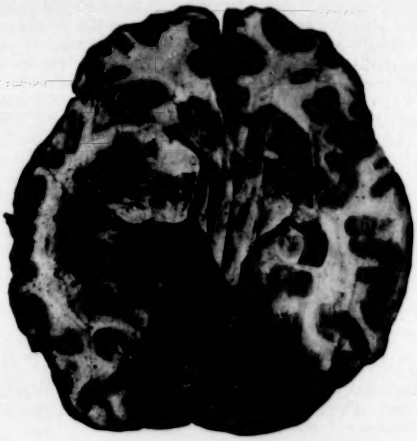

Fig. 3.—Photograph of a section at a level of about ¼ of an inch below that shown in Figure 2. The tumor fills all the anterior and median portions of the temporal lobe (uncinate and hippocampal convolutions) extending into the middle part of the lobe, including the subcortex of the fourth temporal; it also slightly invades the extreme anterior part of the occipital lobe.

Fig. 4.—Photograph of the base of the brain, showing the tumor extending as a pointed process over the left cerebral peduncle. The line shows the position of the tumor.

phenomena may have been due to the involvement of the thalamus and the extreme posterior portion of the internal capsule.

When this case was first seen by me, I regarded it as probably one of tumor in the early stage of development, situated in the uncinate region and especially involving the gustatory area. The further history of the case and the necropsy show that this diagnosis was probably correct, for although the glioma involved at the time of death, as has just been detailed, a much larger area of the brain, both cortical and subcortical, than is presumably connected with the representation of taste and smell, it is probable that it developed from the inferior anterior aspect of the temporal lobe, later implicating the occipital lobe, the cornua of the ventricles, and the basal ganglia, as shown by the sections made at different levels. A glioma so situated could not have been reached by the surgeon.

To J. Hughlings Jackson[1] we owe the idea that visceral, and especially digestive sensations have their cortical representation in the inner convolutions of the temporal lobe, that is, in the uncinate and hippocampal gyri, and probably in the adjoining anterior portions of the fourth temporal convolution. It would appear from the view which this neurologist has expounded and which he has illustrated by well studied cases, that discharging lesions of this portion of the brain give rise to crude sensations of smell and of taste, to gastric and gastrointestinal sensations, to movements of the lips and nostrils, such as smacking or clapping or sniffing, and movements connected with mastication, deglutition and digestion, such as champing, swallowing, and stomachic and intestinal twisting. In addition he found associated with these sensations and movements, apparent alterations in the size and distance of external objects, and above all a peculiar intellectual aura which he designates as the "dreamy state."

Herpin[2] in his writings on epilepsy, to which Jackson refers at length in one of his articles, drew attention to these sensations of odors and to the peculiar intellectual aura sometimes presented by such patients. How frequently gastric sensations and chewing movements are spoken of by patients, every experienced neurologist must recall. He will remember also to his regret, when he seriously takes up the subject in describing a case of peculiar interest, like the one here presented, how often he has neglected to give the consideration which they deserve to these phenomena.

So few have been the recorded cases with necropsy, in which phenomena of taste and smell have been present as the aura of the motor-epileptic seizure, or with the addition of a dreamy or other peculiar mental state as the sole or chief phenomenon of the epileptic attack, that the case given in this paper may be regarded as of considerable value.

A discussion of this case brings before us Hughlings Jackson's uncinate group of fits. He has described these fits as occurring as the result of a cortical discharge of the uncinate gyrus or its neighborhood, the patients having seizures with evidences of gustatory and olfactory sensations and other phenomena such as those above described. The cases with necropsy are so few that Purves Stewart[3] was able in 1899 to collect only six. In his enumeration he omitted the case of Worcester,[4] which was given by me in my paper on "Cerebral Localization in Its Practical Relations," published in 1888, and also in my book on "The Nervous System and Its Diseases."

This case was that of a farmer, aged 30, who had had epilepsy for two years before he came under Worcester's notice. The case presented no special features until Jan. 26, 1878, when after a severe convulsion the man remained in a state of alarming collapse. He remained for three days in a stupid condition. Shortly after the attack slight interference with innervation of the right side of the face was observed when the patient was talking or smiling. On February 11 he regained his ordinary mental condition. No paralysis was discovered except as above mentioned, and no impairment of sensibility except a transient numbness of the hand at times. For several days hallucinations of smell—at first constant, afterwards transitory—were present. Once he imagined the room was full of smoke. He fancied at times there was an odor like the vapor of alcohol passing quickly. He thought this took the place of a convulsion. No test was made of his taste or smell. No marked changes occurred until his death on February 28, after a series of tonic convulsions, with opisthotonos.

At the necropsy inspection revealed a small red spot of softening at the most prominent point of the left gyrus uncinatus. After the brain had been hardened in alcohol a focus of softening existing in the white matter of the anterior part of the left temporal lobe was revealed. This extended to the surface externally, and internally involved the pes hippocampi in the floor of the descending cornu of the lateral ventricle. The portion of the hippocampus major not discolored was swollen and softened. A very small focus of softening, without discoloration, about the size of a large pea, was found in the white matter of the frontal lobe on the same side. No other gross lesions were discovered.

Two of the cases collected by Purves Stewart and recorded by Jackson and Stewart, those of Anderson[5] and Hamilton[6], were referred to in the contributions already cited. These six cases, given mainly in the language of Jackson and Stewart, were as follows:

CASE 1.—Drs. Hughlings Jackson and Beevor[7] recorded a case of a sarcoma, the size of a tangerine orange, situated at the most anterior extremity of the right temporo-sphenoidal lobe. During life the patient had left hemiplegia without hemianopia, hemianesthesia or affection of smell, taste or hearing. She also had numerous fits with an "intellectual aura" and a "horrid smell of dirty burning stuff."

CASE 2.—Drs. Hughlings Jackson and Colman[8] also recorded a case of a small subcortical patch of softening in the left uncinate gyrus. The patient had been subject to epileptic attacks accompanied by a "dreamy" state, with smacking movements of tongue, lips and jaw, but without crude sensations of taste or smell.

CASE 3.—Dr. James Anderson[5] published a case of a large basal cystic sarcoma arising from the pituitary body and spreading into the left temporo-sphenoidal lobe. It had given rise to attacks of peculiar sensation in the right hand, preceded by a sensation of a bitter taste in the mouth, with occasionally also a peculiar smell, and accompanied by the

1. Medical Times and Gazette, 1879, 1; Brain, July, 1880, and July, 1888; Lancet, Jan. 14, 1899, 79.
2. On Epilepsy, 1862, p. 275.
3. Brain, 1899, xxii, 534.
4. Amer. Jour. Insanity, July, 1887.
5. Brain, 1886, viii.
6. New York Med. Jour., 1882, xxxv, 575.
7. Brain, 1889, xii, 346-357.
8. Brain, 1898, xxi, 580.

"dreamy state." There were never any chewing or smacking movements of the lips. Smell was impaired on the left side, and there was slight defect of taste on both sides, especially the left. From affection of the left optic nerve, optic chiasma and optic tract, the patient had blindness of the left eye with temporal hemianopia in the right.

CASE 4.—Mr. Nettleship[9] also recorded a case of tumor of the pituitary body implicating the left optic nerve, chiasma and tract, as well as the left temporo-sphenoidal lobe. In that case there had been paroxysmal sensations of suffocation in the nose and mouth.

CASE 5.—Sanders[10] recorded a case of a large glioma on the under surface of the brain, involving the anterior part of the left temporo-sphenoidal lobe and the lower convolutions of the left frontal lobe and destroying the left olfactory tract. The patient had fits, preceded by a warning of a "dreadful disagreeable smell," also chewing movements of the jaw and spitting of saliva. Later he had convulsions affecting the face, but not the limbs. No dreamy state was recorded in that case.

CASE 6.—Dr. McLane Hamilton[11] also published a case of localized chronic pachymeningitis affecting the right uncinate gyrus and part of the adjacent convolutions, but without involvement of the olfactory bulbs. The patient had been subject to attacks, preceded by a peculiar disagreeable odor, either of smoke or of fetid character.

Linde[11] has recorded a case of tumor of the left hippocampal gyrus and uncus in which hallucinations of smell were present; also loss of the right half of the visual field in the right eye and loss of the pupillary reflex to light in the same eye. In a paper by Southard,[12] his second case had among other manifestations, chewing movements. The history of the case was a not unusual one of an epileptic becoming insane, and the autopsy showed as the major lesions pachymeningitis, especially of the vertex, but spreading in many directions.

The left temporal convolutions were distorted opposite the chiasm. This latter process was merely incidental to the distortion of structures consequent on an aneurism imbedded in tissue below the left uncus, the substance of which appeared to have been largely destroyed by the aneurism, but remains of it, together with a portion of the superior temporal gyrus, could be made out in that portion of the brain substance which had been displaced outward and downward by the lesion. The lenticula had been displaced outward and upward, but appeared to have undergone no diminution in size.

A considerable number of clinical cases which bear out the supposition that the dreamy state with movements of the lips, tongue, jaws and associated parts, are evidences of a cortical discharge, peculiarly localized, have been put on record. Spiller[13] has recorded three such cases. In the first of his cases the patient was a woman 27 years old, who had had epileptic attacks since the age of 3 years; and the aura of the paroxysms were a bright light in front of her, objects appearing strange and out of place, sometimes large and sometimes small, and having the taste of raw, unsalted beef in her mouth. At this point consciousness was lost.

In the second case, in the attack vision was blurred and the patient had a "gassy taste." The attack was ushered in with a creeping sensation in her left upper limb, which seemed to ascend the limb gradually and to involve the left side of the tongue, so that the tongue felt thick.

In the third case, the patient, a man 40 years old, for two years had had at intervals what his wife called "swallowing spells" in which he became unconscious, made the noise and movements of swallowing, and rubbed his fingers together. These attacks lasted a minute or two. In this case the patient after a very severe convulsion was paralyzed in his right upper extremity, which was the seat of great pain. Power was gradually regained. As the paralysis disappeared in the right limb, he became weak in the left, in which pain was felt on movement. Interesting phenomena in this case were appearances of subcutaneous hemorrhages in the conjunctiva, in the face and about the right shoulder, and in a subsequent attack much like the first the patient had severe hemorrhages in the right side of the neck, right shoulder, and right upper limb. In a third severe attack other hemorrhages occurred. Between his attacks or as a part of them he had swallowing spells. Although this patient had the swallowing spells, he had never had any phenomena indicating sensations of taste or smell. Spiller regarded the case as belonging to the uncinate group of fits.

Gowers,[14] out of 119 cases of epilepsy in which special sense aurae were present, found 7 olfactory and 1 gustatory. In regard to cases of epilepsy with a gustatory aura. Spratling[15] cites a case in which the patient stated that he almost always had light attacks following severe ones at night, and following the light attacks he had a peculiar taste and sensation in the mouth which he described as follows:

> The first is a "sour taste"; the second similar to that of "wheat bran in the mouth"; the third, a feeling of "stringiness," combined with "numbness in the upper part of the mouth"; the fourth, a "sickish, sweet taste" sufficient to produce extreme nausea; the fifth a "filthy, nasty taste," which is extremely disagreeable; the sixth and last being a feeling of "sliminess" in the mouth. The morning following the patient feels "unusually well," much more so than during any time more distant from his seizures. These disorders of taste may continue for a day and gradually shade out from the sixth condition to that of normal sensation. They have persisted for years and can not be ascribed to stomachic indigestion.

Spratling in his record of cases which he regards as illustrations of the psychic epileptic equivalent, gives the record of the case of a man 40 years old, a commercial traveller, who kept a diary of his movements for several months, this being interesting in various particulars, as for example, in the fact that he wrote down accounts of the seizures which he had suffered, and also of other occurrences, for which for one period of several weeks of the time in which he kept this diary, he had no recollection or only for some of the events a dim recollection. Two of the attacks which were noted during this time were accompanied by chewing movements, in one of which he chewed a thermometer and spat out the pieces of glass, of this seemingly having had some faint recollection. In another, the record is made of an "epileptic attack between 4 and 5 p. m. Chewing severe."

Spratling does not discuss in detail the views of Hughlings Jackson as to the "dreamy state," although

9. Ophth. Soc. Trans., iv, 285.
10. Archiv f. Psychiat., 1874, iv, 234.
11. Monatschr. f. Psychiat. u. Neurol., vii, No. 1, p. 44; cited in Progressive Medicine, September, 1900, 205.
12. Amer. Jour. Insanity, April, 1908, lxiv.
13. American Medicine, March 19, 1904, 474.
14. Epilepsy and Other Chronic Convulsive Diseases, William Wood & Co., 1885.
15. Epilepsy and Its Treatment, W. B. Saunders & Co., 1904.

he speaks of its occurrence and records two or three instances taken from L. Pierce Clark.

William Aldren Turner[16] in his monograph on epilepsy, discusses certain dream states as distinct from the dreamy state described by Hughlings Jackson as frequently showing itself as an aura in connection with crude sensations of smell and taste. While these dream states may occur more or less paroxysmally, they are especially interval phenomena. They are to be regarded, as Janet has regarded them, as psychasthenic phenomena. In them the patient suffers from a sense of unreality of the things around him, and from a distressing disturbance of his usual mental equilibrium. They are subjectively so painful at times that the patients express a feeling of dissatisfaction or worse, because they have replaced the paroxysms which, although transiently more severe, leave a clearer and firmer mental atmosphere. Such cases have been described by Crichton-Browne, Pick, Janet, Turner, and others, and must not be confounded with cases showing the dreamy state as described by Hughlings Jackson as one of the aura in the uncinate group of fits. It is probable, however, that the dream state just described, and the dreamy state of Hughlings Jackson, have something pathogenetically in common, although the psychasthenic dream state may be more dependent on the deteriorative cerebral condition of the patient, than on the discharge of a more or less localized lesion.

Turner in discussing the special sense auræ, refers to sensations of taste and smell, and epigastric sensations, with or without the dreamy state, following Hughlings Jackson in his description of the uncinate group of fits. He gives one case in which "there was described a 'smell of spring' which occurred both as the representative of the minor attacks and as the aura of the complete seizure. In the subsequent course of the case the aura was no longer present."

Spratling seems to take the ground that the epigastric auræ which he enumerates and describes in fifty cases were in some way dependent on conditions of indigestion or special disturbance in the gastrointestinal tract, in this regard differing from Sir William R. Gowers, and also from Hughlings Jackson. This way of looking at the subject has practical enticements. It helps to support the view that the epileptic attacks can be prevented by close attention to the gastric or gastrointestinal state. It is probably true that the condition of the alimentary canal, especially the presence of fermentative disorders in connection with constipation and imperfect or halted digestion, should be corrected as far as possible with the hope of doing something toward the relief of the epilepsy and especially toward decreasing the number of the seizures.

My own observation, however, inclines me to the view that the epigastric aura is only a part or at least a manifestation of the localized cerebral discharge, that it is due, in other words, to a discharge lesion which affects the cortical centers concerned with the representation or control of the sensory or motor or both sensory and motor side of the epileptic syndrome. Many facts would tend to indicate the truth of this view, among these being those which show the frequency of epigastric with gustatory and olfactory phenomena in reported cases. It is true that these gustatory and olfactory phenomena are often absent. It is nevertheless probable that sensory and motor centers concerned in some way with gastrointestinal interpretation have a more or less separate existence, and are situated in the same region of the brain as are the cortical centers for taste and smell.

In the study of cases illustrating the uncinate group of fits, especial attention should always be given to the respiratory phenomena. In the case of the patient whose history is recorded in this paper, some peculiarities of respiration in the attacks were noted. At least the patient's appearance was such as to indicate the occurrence of light asphyxia or interference with respiration and cardiac action. Her face would almost invariably turn of an ashen hue. In the severe attacks her face not only became pale as in the light ones, but also became congested.

Hughlings Jackson has especially called attention to states of slight asphyxia which are sometimes observed in the uncinate seizure. In one of the cases recorded by him the patient's face turned blue, or as he quotes the paradoxical expression of some one who observed the attack, "dark pale." He advanced the suggestion that this partial asphyxia and change of color is due to spreading of the discharge lesion in the uncinate gyrus to Spencer's respiratory arrest center, and from this center to the respiratory centers in the oblongata. He speaks of the probable occurrence of writhing movements of the arm in these uncinate respiratory attacks, saying that they are "the consequence of (the physical condition for) suffocation."

He cites from Herpin the account of a patient who had attacks with epigastric sensations, champing movements, and slow irregular movements of the arms.

He also illustrates his opinion by another case of his own. This patient, a man of 52 years, had a "funny feeling" which was not true vertigo; of this feeling he said "I can't tell what it is." This feeling might or might not have been the dreamy state. His wife knew when his attacks were coming on by a noise he made, smacking his lips as if tasting to indicate what this noise was. When the noise stopped the patient's lips turned blue; his eyes were half closed. His arms dropped limp, not stiff. He came round by drawing a long breath, then breathed easily and seemed dazed and muddled. He had a nasty taste in the mouth after the attacks. Says Jackson:

> **Smacking movements of the lips, nasty taste, dreamy state, if there was one, and "turning blue" may seem at first glance to have no sort of relation to one another. I submit that they have an association in the sense that there is one discharge-lesion of some cells of the uncinate gyrus and that there is spreading of the discharge from this focus. I believe, too, that the dreamy state (which I have said often occurs in this group of fits, although perhaps not in the case just narrated) is a consequence, a very indirect consequence, of a discharge-lesion so situated.**

The observations made by W. G. Spencer,[17] to which Jackson refers, were "on the effect produced on respiration by faradic excitation of the cerebrum in the monkey, dog, cat, and rabbit." This excitation which produced arrest of respiration, was of a particular spot which Spencer describes as "situated in all the animals examined to the outer side of the olfactory tract, just in front of the junction of the tract with the uncinate. And this arrest can be constantly obtained and the experiment repeated again and again under certain condi-

16. Epilepsy, Study of the Idiopathic Disease, Macmillan & Co., 1907.

17. Trans. of the Royal Society, vol. clxxxv, 1894, pp. 609 to 657.

tions. . . . This arrest in the monkey was nearly always in expiration, but only rarely was any active respiration seen."

Some work remains to be done regarding the localization of functions in the inferior portion of the temporal lobe and the orbital surface of the frontal lobe. Cases like the one here first recorded, and the others to which reference has been made, are of value in the solution of the physiologic problems concerned with these portions of the brain. The indications are all in favor not only of the location in the uncinate region of the centers for smell and taste, but also for the representation in this region and its vicinity of the sensations produced by the activities of the abdominal and thoracic viscera.

It will be seen that an epigastric sensation was a portion of the aura in the case here reported. Similar sensations have been present not only in a few recorded cases in which gross lesions have been found at necropsy in the inferior temporal region, but also in many cases of so-called indiopathic epilepsy. Other sensations, processes, or phenomena, connected in some way with the functions of the great abdominal and thoracic viscera have been recorded as occurring in patients with lesions in the part of the brain under discussion. Voracious hunger and thirst, for example, have been noted in cases of abscess and other lesions of the temporal lobe (Hughlings Jackson, Purves Stewart, and Stephen Paget).

THE RENAL ORIGIN OF VESICAL CALCULI,

WITH OBSERVATIONS ON CALCAREOUS TUMORS OF THE BLADDER.*

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The *raison d' être* of this paper is given by two observations which are apt to modify some of our diagnostic views in regard to calculus formation in the urinary tract. Both are, as it seems to me, of academic interest, as well as of more than ordinary practical importance.

The first of my conclusions was reached by my experience that during a space of four years I found among eleven cases of stone in the bladder nine in which the Roentgen method showed renal calculus at the same time. In those two, in which the renal skiagraphs proved to be negative, technical defects occurred, which made the result doubtful, the patients at the same time not giving me a chance to clear up a possible error. In none of the patients were clinical symptoms present which pointed to the presence of nephrolithiasis. In five of the cases skiagraphy was verified by the surgical operation. A preliminary report was made[1] on this coincidence, which contradicts the generally adopted axiom that concretions originate either in the kidney or in the bladder.

Now, while most authors believe that the majority of vesical calculi are originated in the kidneys, they still hold that a considerable percentage is primarily formed in the bladder. Before the Roentgen era this opinion, based on a limited amount of experience which was gained rarely on the operating table and little more frequently during autopsies, had to be accepted because there was no proof to the contrary. The repeated recurrence of vesical calculus after thorough suprapubic lithotomy in some of my patients often suggested the possibility to me that with few exceptions the kidneys were the originators of the stone at preskiagraphic times, but the only proof of this assumption would have been exploratory nephrotomy on both sides, a procedure which could not be fully justified. Now, a simple photograph can give us more precise information on this point than a surgical maneuver, which, in spite of our greatly developed technic is not an indifferent undertaking.

In investigating the nascent state of calculus I am satisfied that such solid ingredients, which under normal conditions remain dissolved in the urine, for some reasons are precipitated. Such substances are the urates of soda and ammonia, uric acid, phosphates, oxalates and carbonates of lime, cystin and xanthin of uric oxid. *A priori* it appears to be obvious that these ingredients are more inclined to be arrested in the convolutions of the renal structures than in the regular surfaces of a normal bladder. If microscopic examination of the urine were made more frequently, the number of cases in which newly formed precipitates, i. e. gravel, are carried off by the natural passages, would be much greater than we, as a rule, assume. And it is by no means essential that an excess of the ingredients mentioned should be present in order to cause precipitation, because calculus-formation is often observed when the proportions of these solid contents are perfectly normal. Of course there must be an exciting moment for precipitation. In some instances such moments can be well recognized, as, for instance, in cases of local irritation, caused by the introduction of foreign bodies which serve as a nucleus for incrustation. Such alluvial provokers may be broken fragments of a straw, of catheters, pins, thermometers, pencils or sealing wax, etc., as they are frequently found by cystotomy. Their provoking influence may be enormous, as can be proven by introducing a soft rubber catheter into the normal bladder in my operation for hypospadias. A catheter left *in situ* for not more than four days is apt to show such massive incrustations that their intravesical presence can be recognized on a skiagraphic plate.

Necrotic tissue, mucus and even blood-clots may also form a kind of magnetic attraction for the salts. In this connection I refer to my observations on tuberculous kidneys, in which calcareous foci were deposited which would be recognized on a Roentgen plate as such.[2] Here, as in the lungs, glands, etc., tubercle bacilli act as an exciting element for concrementation.

But where no such conspicuous element exists, the nature of the impetus for precipitation is to be regarded an unknown quantity, just as in the question of the formation of biliary calculi. While we know that they are originated through bacterial influence, we neither know wherein the essential element consists which makes bacteria enter the gall bladder nor what gives them the peculiar attractive influence.

The fact that bacteria are detected in vesical calculi does not prove that they are the cause of the formation. They may just as well be the consequence, at least we can say that calculi offer a most favorable soil for casterial development. The only instances in which bacteria can be proven to be etiologic factors are repre-

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Annals of Surgery, December, 1905.

2. Renal Skiagraphy, Arch. Roentgen Ray, London, February, 1905.

sented by those cases which are due to the entering of parasites into the bladder. For instance, the *Distomum hæmatoibium* of Bilharz is found endemically in some parts of Africa, and its eggs form a kind of an alluvial provocation for concrementation. The same applies to *Filaria sanguinis*, which is endemic in some tropical countries. How far the *Bacillus coli communis*, which is so much suspected of playing an etiologic part in the formation of biliary calculi, is to be considered in regard to the formation of urinary calculi can not be determined at the present time.

Thus it becomes evident that nothing definite about the exciting element in calculus-formation is known except in the comparatively small number of cases in which either a solid foreign body or a parasite of a distinct character succeeded in entering the bladder.

Skiagram of the vesical and renal regions of a boy of 10 years, showing the presence of a large mulberry calculus in the bladder and a still larger triangular concretion tightly imbedded in the parenchyma of the left kidney. Note the small calculus near the lower surface of the large renal concretion.

But in the overwhelming majority of cases the question of whether the calculi were of renal or vesical origin could not be answered. Now, if a Roentgen examination of both renal regions were made in every case of vesical calculus, the regular recognition of renal calculus would answer this most important question satisfactorily. I have no doubt that with the exception of extraordinary conditions, like those mentioned above, the embryonic stage of the vesical calculus is in the kidney, in other words miniature calculi or gravel form in the kidney and either all or some of them descend through the ureters into the bladder, where they become the nuclei for further stone-development. Or small fragments of renal stones separate themselves and descend into the bladder to be arrested there and grow. The cases of so-called ascending infection in vesical calculus should be taken *cum grano salis*, because the pyelonephritis found may just as well be due to renal concretions which were not recognized.

Microscopic examination of the calculi does not give us any more information as to their origin, because the tender organic miniature structure which permeates the calculous mass does not show any texture characteristic for one or the other organ.

It is true that the number of my cases is small, but if to some of you my observations should not prove the renal origin of vesical calculi in a general sense, the undeniable facts brought out by them at least offer an entire new perspective of an etiologic, as well as of a therapeutic nature. In other words, after being extracted, the vesical calculus nephrolithiasis must also be treated. The experience that vesical calculus is but seldom found in women (5 per cent.) is also in favor of the renal origin of vesical calculi, since the short and wide female urethra permits of the easy escape of the small renal calculi which had descended into the bladder.

One of my most convincing cases is that of a boy of 10 years, from whom a large vesical calculus was removed by suprapubic cystotomy six years ago. The relief was complete for about a year, when the patient again began to suffer from the symptoms of vesical calculus. Three years ago I skiagraphed the vesical, as well as the renal regions, the result of which was the Roentgen plate shown in the illustration. It shows the presence of a large mulberry calculus in the bladder and a still larger triangular concretion tightly embedded in the parenchyma of the left kidney. The right kidney showed normal relations. It is of interest to note the small calculus near the lower surface of the large renal concretion, as it illustrates the manner in which smaller concretions may primarily form in the kidney to escape into the bladder, where they act as nuclei for future vesical stones. The examination of the calculi after their removal from this patient proved them to consist of oxalate of lime, the outer layers of the renal, as well as the vesical calculus, showing a smaller degree of density than the inner. As to further details I refer to my article in the *Annals of Surgery*, mentioned above, and to my experimental studies on the density of calculi.[3] My second conclusion is based on the observation that incrustations in vesical tumors are sometimes so abundant that calculus is diagnosticated. We know that before the introduction of cystoscopy, vesical calculi were often overlooked and a positive diagnosis of vesical tumor was generally made at the autopsy table only. In fact, our whole diagnostic armamentarium consisted in the steel sound, which often missed the calculus. Now we can not only feel the stone, but we can also see it. This possibility seemed to have settled all diagnostic questions at once. But important as the method is, sometimes it fails, as more thorough observation has shown us. It is true, in the great majority of cases, the cystoscope furnishes the most precise information as to the size and shape of a calculus. Besides the question of whether it be movable, free or encysted, whether there is more than one calculus and how many, and, as a rule, whether the functional disturbance, the pain and the

3. Arch. Physiol. Therapy, March, 1906.

occasional hemorrhage was not due to the presence of a tumor, can be proved. Still, as I have emphasized repeatedly in previous publications, this most useful instrument may fail when a calculus is encysted. In fact, the stone may be so deeply imbedded in a diverticulum, from which it fails to project, that its area does not present any essential changes to the cystoscopic view.

Therefore cystoscopy, valuable as it is in itself, should always be aided by the Roentgen method, thus rendering the overlooking of a buried calculus a simple impossibility. On the other hand, the most positive Roentgen picture should not be the only guide for the operative strategy, a cystoscopic examination being necessary besides. Never before did the association of these two methods appear so important to me as in a recent case, in which the Roentgen method seemed to contradict the findings of the cystoscope.

The patient, a man of 63 years, was first examined by me March 30, 1907. Six months before that date he began to suffer from frequent and sometimes painful micturition. The urine was bloody at times. During the last two months the painful micturition had increased, especially after bodily exertion, and the signs of decomposition of urine were marked, the general condition also becoming more and more impaired. The presence of a vesical calculus was thought of, but the introduction of a metal catheter by the family physician did not produce a click. The patient was referred to a surgeon, well trained in cystoscopy then, whose diagnosis was tumor of the bladder.

When I introduced my stone searcher I perceived a feeling of resistence similar to that sometimes noticed in hypertrophy of the prostate. Rectal palpation revealed marked hardness in the continuation of the prostate, slightly toward the left. Cystoscopic examination showed the presence of an oval tumor, with a nodular surface, and of the size of a hen's egg. Microscopic examination of the urine revealed the signs of purulent cystitis besides epithelial cells with an excess of cystin.

The Roentgen picture presented a regular elliptic shadow in proportion to the size of tumor seen by the cystoscope. (The skiagram, not being easily reproducible on paper, is omitted). Especially the regularity of the outlines were identical with the shape found in calculi of fairly large size. The polymorphous epithelial cells not giving any special diagnostic information, I was tempted to assume that I had to deal with an encysted calculus. But suprapubic cystotomy performed April 2, 1907, showed the presence of a hard carcinomatous tumor, the broad base of which began at the left side of the trigonum. The whole mass was interspersed with crumbs of calcareous masses, which appeared like a skeleton surrounded by shreds of fibrous tissue. The microscopic examination, for which I am indebted to Professor Buxton, showed the calcareous matter to consist of phosphates, while the tumor tissue was fibrocarcinomatous. The renal regions gave a negative skiagram. The patient made a good recovery, but two months later the signs of recurrence became apparent and shortly thereafter the patient died from pyelonephritis. In this case the Roentgen method, otherwise so ready to enlighten us, was apt to obscure the nature of the case, which the cystoscope had recognized in its true character at the very beginning. While it undoubtedly occurs not too rarely that calculus gives the impetus to carcinoma-formation, in this instance carcinoma was the primary lesion, the incrustations being deposited while the carcinoma was growing. The large amount of the calcareous matter was remarkable. I believe it to be worth while for physicians to give these points their attention in order to clear them up further. So far the literature does not mention them.

A NEW AND RAPID METHOD OF PERINEAL DRAINAGE IN SUPRAPUBIC PROSTATECTOMY.*

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The question of choice of route in operations on the bladder is not a new one. Since bladder stones were first removed by operation, the question between the sectio alta and sectio perinealis has been the subject for heated discussion among surgeons. The radical treatment of prostatic enlargement by operation has given it a new interest. Since the perfecting of suprapubic prostatectomy by Fuller, Freyer, Fenwick and others, its adoption by surgeons in general has been very large. On the other hand, the advocates of the perineal route by the methods of Parker Syms, Proust and Young are no less staunch, though perhaps fewer in number.

Each method has its advantages and disadvantages. To my mind, and from an experience not inconsiderable with both methods, the advantages of the suprapubic method largely outnumber those of the perineal operation. When it is indicated, it can, save in exceptional cases, be completed in less than fifteen minutes. When we consider the advanced age and the debilitated condition of most prostatic sufferers, this of itself is of prime importance. The suprapubic operation does not disturb the normal relations of the perineal pockets, and what hemorrhage there is before reaching the prostate comes from the bladder wall, where it is easily controlled. The hemorrhage incident to the enucleation of the prostate is always easily checked, if the incision in the bladder is of adequate length. Here I have found the use of formaldehyd-gelatin (glutol) of inestimable service.

Through the suprapubic incision the prostate can easily be enucleated as a whole, the finger of the left hand (properly protected with gloves) forcing the gland from the rectum toward the enucleating finger. If a conservative operation is to be performed, which I regard in the average cases as a mistake, the removal of the middle lobe or bar and parts of the lateral lobes with the retention of the seminal bridge is thoroughly feasible. Wounding of the rectum in capable hands is an accident almost impossible; while in the perineal route I believe it to be a not infrequent complication, even in master hands. Postoperative sloughing of the rectum can only occur after a perineal operation.

WHEN THE PERINEAL ROUTE IS PREFERABLE.

There is, of course, one class of cases in which the perineal operation is always indicated. I refer to the small, dense fibrous prostate, adherent to the capsule, and in which a cystoscopic examination shows little or no intravesical projection. Here the careful dissection necessary to removal must be made with cutting instruments, and should, therefore, be controlled by the eye of the operator. In that very rare class of cases of prostatic hypertrophy in which there is concentric hyper-

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session held at Chicago, June, 1908.

trophy and contraction of the bladder, the perineal route is also to be preferred.

A comparison of the mortality statistics of the two methods of prostatectomy militates somewhat against the high operation. For this a number of factors are responsible. First, it doubtless is true that the high operation is reserved by many for the more advanced cases and those complicated, as for example, with stone. The second and more important cause for the greater mortality of high prostatectomy lies in the inadequacy of drainage as it is commonly sought to be established in violation of a fundamental principle of wound treatment. Uphill drainage is the one generally practiced after high cystotomy.

INFECTION OF THE PREVESICAL SPACE.

Since an overwhelming majority of patients requiring an operation on the prostate present an infected bladder, the results of the suprapubic operations are vitiated by the not infrequent infection of the prevesical space, and sloughing of its loose connective tissue. At best the wound is kept clean with difficulty, all mechanical devices to the contrary notwithstanding. Frequent changes of dressing are imperative and become disturbing to the patient. Not infrequently convalescence is protracted by an annoying eczema around the wound. It is not unusual for a vesical fistula to persist for months, and in some cases it is permanent. Added to these disadvantages is the necessity of long confinement in bed with all its attendant menaces.

Fig. 1.—Trocar for opening the perineum after shelling out the prostate.

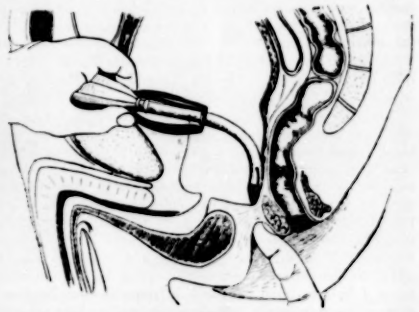

Fig. 2.—Trocar pushed through the most dependent part of the emptied prostatic pouch against a finger of the left hand placed a little in front of the anus. Bulb avoided and membranous urethra undisturbed.

The danger of a ventral hernia I believe to be largely overrated. I have seen it in only one case. In this the incision was a transverse one. To gain sufficient room the rectus was partly divided on each side.

To obviate the difficulty of draining the prevesical space, drainage may be secured by a catheter retained within the entire length of the urethra, or by a second perineal, median section (boutonnière operation). Drainage through the entire length of the urethra by a retained catheter has, in my hands, proved unsatisfactory. The caliber of the largest tube the anterior urethra will tolerate is, in my experience, not large enough for adequate drainage. The ordinary catheter easily becomes clogged by small blood clots and thereby defeats its own purpose. Furthermore, the discomfort of a prolonged retention of a catheter within the urethra is not to be disregarded.

The alternative is perineal section and drainage. While it is true that the ordinary boutonnière operation may be quickly done, it necessitates placing the patient in the lithotomy position after the prostatectomy has been completed. In this operation, as in perineal prostatectomy, there is danger of wounding the bulb and of opening the superficial perineal pocket. Postoperative hemorrhage into the scrotum and sloughing with all its attendant dangers, and protracted confinement in bed, can not be uniformly avoided. The division of the cut-off muscle incident to the median section for drainage can not but seriously retard the patient's control of urine.

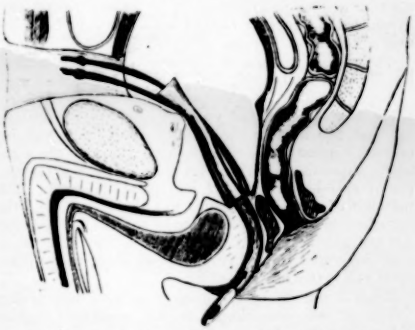

Fig. 3.—Trocar withdrawn and a large self-retaining catheter or drainage tube pushed through the cannula from within. Cannula is then removed through the suprapubic opening by the affixed tape.

Fig. 4.—Cannula withdrawn and drainage tube placed with its upper end in the prostatic pouch and held in place by a perineal stitch.

AUTHOR'S METHOD OF DRAINAGE.

For these reasons, within the past eight months, after shelling out the prostate through an adequate suprapubic section, and after controlling hemorrhage, I have, so far as possible, opened the perineum from above by a large trocar and cannula (Fig. 1). The trocar is pushed through the most dependent part of the emptied prostatic pouch against a finger of the left hand placed a little over half an inch in front of the anus. By backward pressure the finger of the right hand protects the rectum. This is easily done without changing the position of the patient. The bulb is avoided and the membranous urethra undisturbed (Fig. 2).

The trocar being then withdrawn, the cannula projecting through the perineum, the largest self-retaining catheter or a drainage tube is pushed through the cannula from within. The cannula is then removed through the suprapubic opening by an affixed tape (Fig. 3). The caliber of the cannula is that of a thirty-six (French) sound. After the cannula has been withdrawn, the drainage tube is placed with its upper end in the prostatic pouch, where it may be fixed by a perineal stitch (Fig. 4).

This method of establishing perineal drainage takes less time than does its description. The harmlessness of the procedure is a further advantage. There is practically no danger of hemorrhage from the stab made from within, and the pressure of the rubber tube when placed in position is sufficient to arrest what little bleeding might take place. I have never seen infiltration of the scrotum by reason of opening the superficial perineal pocket, nor bleeding in any of the twelve cases in which I have resorted to this method of drainage.

I complete my operation by layer suture of the bladder wound. The abdominal wound is also closed by layer sutures, save for a very small cigarette drain placed against the sutured bladder as a matter of security. The after-treatment is precisely like that of perineal prostatectomy and the patient is enabled to be out of bed at the end of a week.

As compared with other methods of securing drainage after suprapubic cystotomy, where drainage is indicated, I believe this method to be possessed of such advantages that I confidently submit it to my colleagues for trial.

DISCUSSION

ON PAPERS BY DRS. BECK AND RANSOHOFF.

DR. HUGH H. YOUNG, Baltimore: Retention of urine is one of the greatest causes of vesical calculi and chronic retention should not be allowed to persist unattended. Infection of the bladder, however, is more often a cause of calculus formation, except in young men in whom the calculus is of the oxalic type. It is possible that in some instances the agglutinating action of bacteria may be responsible for the formation of the nucleus of the calculus.

Every one knows that I am more or less opposed to suprapubic prostatectomy. The perineal operation can be done just as quickly as the suprapubic. I have frequently been able to complete the operation in from twelve to thirteen minutes, and I hold that time is not such a great factor that it is necessary to do a destructive operation in order to get the patient off the table very quickly. As a matter of fact, the operation can be done just as quickly one way as another. The checking of hemorrhage is one of the greatest objections to the suprapubic route. Dr. Ransohoff speaks of the use of gelatin and other things that take a great deal of time. The use of packing in the suprapubic wound, that is in the cavity left after enucleation of the prostate is greatly condemned by Freyer of London, who holds that hot water run through a tube in the perineum is best, and is really the only styptic to be used. His statistics show that there should be left as little place as possible for the collection of fluid or the deposition of pus, and that no packing in the suprapubic wound should be used. If the perineal operation is done carefully injury of the rectum should never occur. In 200 cases I have not, so far as I know, a single case of rectal fistula to answer for. I am glad to see this acknowledgment of the disadvantage of uphill drainage. A suppurating bladder can not be thoroughly drained in that operation. From the anatomic standpoint there are certain things that would keep me from using this very ingenious instrument. I believe that the method of supplying good drainage is good, but the question is whether he has chosen a method that is free from danger. Suppose that after a suprapubic prostatectomy the urethra has been opened and there is a large cavity beneath the urethra from which the prostate has been removed. If the urethra has been removed with the prostate there is another cavity connecting with the bladder. The bulb surrounds the urethra; the perineum comes down and opens into the rectum, and then the rectum takes an acute bend forward and lies very close to the prostate and membranous urethra. This portion of the rectum has been called by the French the bladder of the rectum; it evidently has the function of holding the feces so that it will not press against the anus. In dissections I have frequently found the rectum drawn out so that it was in absolute contact with the bulb, and in some cases anterior to the bulb, especially in patients who had had a previous perineal section. It is held forward by the rectourethralis muscle, whose object is to preserve this curve of the rectum. Dr. Ransohoff's instrument, as I understand it, is introduced through the inferior part of the incision, and he tried to go posterior to the bulb. I hold that in such cases it would be distinctly dangerous to go from this point to the perineum with the danger of injuring the bulb of the membranous urethra and the sphincter, and in certain cases there would be a great danger of going through the rectum. I feel that the instrument ought never to be used except by Dr. Ransohoff, who understands its uses, its dangers and can avoid them. I think that the mortality is the one thing we bear in mind in choosing a method of prostatectomy. Unquestionably the suprapubic method is excellent in its results and it cures in desperate cases, but it is only by studying a long series of cases that we can determine which operation should be done. My experience in at least 500 cases of enlarged prostate shows conclusively that the perineal method is the simpler and is unquestionably less dangerous. In a period of almost three years I had 128 consecutive cases without a death, and every one of my patients left the hospital alive and well. Among these were 4 over 80 years of age; 23 over 75 and 46 over 70, and during that period of three years I do not think that more than 3 or 4 patients came to the hospital who were not operated on. That may be more or less good luck because since then, in a period of three months, there were three deaths. One of these patients was a severe case of pyonephrosis and one died in the ninth week after operation.

DR. BRANSFORD LEWIS, St. Louis: The question of diagnosis is the most interesting one we can take up. One certainly can not make a correct diagnosis based on the symptoms, because these will mislead as often as they prove reliable. Five minutes of a physical examination will tell one more than a week's analysis of the symptoms. Which method of physical examination is the most serviceable, the most accurate? We must not exclude any method. Cystoscopy and radiography are both valuable and both should be used. I agree with Dr. Beck in much that he said. First, as to the feature of the searcher. It is a searcher, but it is often not a finder. In many cases of vesical calculus not only did I fail to find the calculus by means of the searcher, but those who preceded me in these cases likewise failed. An old doctor in the West carried three stones in his bladder for ten years. He was troubled with frequent urination during all this time, but no stones were found until the cystoscope was used. In another case a stone the size of a hen's egg was in the bladder without being detected until the cystoscope was used. The prostate may hide the stone from the searcher and yet it may be as

plain to the cystoscope. In relation to ureteral calculus, the same thing holds good. We must use the cystoscope and the ureteral catheter, as well as the *x*-ray in order to exclude certain failures; one or the other method may be useful, but certainly we ought not to limit ourselves to either one or the other; otherwise we may go astray. Dr. Ransohoff's description of the method made a better impression on me than I arrived at *a priori*, and I am favorably impressed with his plan. If that method does succeed, it removes one of the greatest objections to suprapubic prostatectomy, because if we take the two operations, the suprapubic versus the perineal, the execution is probably easier in the former than in the latter; but if we take into consideration the convalescence the perineal is the preferable operation because of the better drainage and the recuperation. If Dr. Ransohoff succeeds in doing away with this slower and more unfavorable convalescence from the suprapubic prostatectomy this will lessen the discomfort from the operation and make it more popular. I have favored perineal prostatectomy because of the better convalescence.

DR. J. E. CANNADAY, Hansford, W. Va.: We must admit that the surgery of the bladder is less perfect than the surgery of other parts of the body, especially of the abdomen. What Dr. Lewis said with regard to the advantage of the suprapubic prostatectomy is true. That operation is easier for the average man to perform; and, again, the results are far better because the surgeon is not so apt to have the troubles of urinary incontinence and perineal fistula, which sometimes give a great deal of trouble to the men who are not very familiar with this class of work. Of course, in the hands of some experts better results follow from the perineal operation than from the suprapubic. When one drains the bladder one gets a fluid that is not only toxic but is also often infected, and unless this fluid is all drained away infection of a large raw area and absorption from it will result. If after a suprapubic operation one drains from below, he gets the advantages of both operations.

DR. J. RANSOHOFF, Cincinnati: I have tried this method in twelve cases; in none did I hurt the rectum. I know that one can not take out a prostate entirely without damaging the urethra to a considerable extent, and, therefore, the objection made to this method of drainage, namely, that the pocket is left with an intact channel running through it, is, I think, entirely theoretical. The other objection to the method is on the anatomic grounds that there is only a slight interval between the rectum, on the one hand, and the floor of the urethra on the other. In the ordinary buttonhole operation, the old median operation for stone, this interval was utilized. The older surgeons who were fully familiar with the surgical anatomy of this part favored it, and it has been done for at least 2,000 years. It was always done, if possible, behind the bulb. The bulb was guarded, the rectum was pushed back with the finger, the membranous urethra was opened and through it the finger was introduced into the bladder. A wounding of the rectum in this operation was considered almost a disgrace. In the operation I have described and practiced a little judgment is necessary. It is the easiest thing in the world with the finger in pocket emptied of the prostate to push the rectum out of the way and the trocar to the perineum and pierce the intervening soft parts. The rectum is not endangered because it is kept out of the way. I know that Dr. Young prefers the perineal operation. I do perineal prostatectomies often and I prefer that method almost always when the upper end of the prostate can be reached through the rectum. I have only advised my method as a slight improvement in the technic of suprapubic cystotomy. The great difficulty of preventing infection of the prevesical spaces and that of infiltration of blood in the superficial perineal pocket with its attendant dangers by my method I try to abort. This method of stab puncture endangers neither the bulb nor the rectum. I may be permitted to add that in one case at least the patient after the operation enjoyed the pleasures of paternity, and I think I can state, as did Gil Blas at the end of his many adventures, that "this man has a son of whom he conscientiously believes that he is the father."

DR. CARL BECK, New York: It is remarkable how skilful some men may be in most respects and yet how unskilful in handling an *x*-ray machine. There is not a vesical or renal calculus which can not be shown on a skiagraphic plate. If it is in the kidney or bladder and it is not demonstrated by the skiagrapher, it is the fault of the man and not of the method.

I wish to modify my views somewhat by adding that there is no reason why every man who handles an *x*-ray machine should always be successful. He may be successful to-day and not to-morrow. I have had large experience with this special work, and yet I make many poor pictures. There are sometimes little details which we do not have in mind at the time, and these might not be observed, and that is the reason why we get a poor picture. In that case, however, one must recognize that it is a poor picture and not try to tax all the powers of the imagination to find what is not shown. We must not guess. We must see and have the undeniable presence of the stone.

THE ETIOLOGY OF CHRONIC NON-TUBERCULOUS ARTHRITIS.

A PRELIMINARY REPORT.

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During the past year invest gations have been started on the subject of chronic non-tuberculous arthritis which must necessarily continue for a considerable period of time before sufficient data can be accumulated to make any authoritative statements possible; but enough has been accomplished to indicate definitely the line of investigation in the future and it seems appropriate at this time to gather together the observations already made into a preliminary report.

The class of cases about which the work has centered up to the present time have been those obscure chronic types called rheumatoid arthritis, leaving out of consideration undoubted cases of infectious origin like gonorrheal arthritis, also traumatic varieties or those due to mechanical irritation simply, and the neuropathic kinds represented by Charcot's joints. Clinical material has been obtained from the Massachusetts General Hospital and also from Dr. Joel Goldthwait's private practice, so that many persons have been seen in an incomplete way and observations made so scatteringly as to render presentation in a paper difficult.

Bacteriologic examinations have been carrried out on the stools of a dozen patients to determine the predominant type of organisms present in the intestines and blood cultures made from as many more cases, while agglutinative tests have been tried a few times with negative results on bacteria isolated from the feces. The effect of fermented milk on intestinal putrefaction was tried on eight or ten private patients during the summer of 1907 but with rather inconclusive findings; so it seems that the state of advancement of the investigation may best be indicated by a detailed account of two of the later cases, each of which represents a type of the disease and exhibits most of the points that are desired to be brought out.

These two cases represent acute exacerbations of the chronic trouble, for it has been found that the slow processes of the very chronic cases are hard to identify, and advantage has been taken of the acute stages in which abnormal conditions are most noticeable.

The first case is that of an unmarried woman of 35 years who has had a history of recurring attacks of

arthritis since 3 years of age and who exhibits a very interesting reaction to ether anesthesia. Ether administered in the usual manner on a cone for fifteen minutes, when the symptoms were very excruciating, while the patient lay helpless in bed from involvement of all joints, produced nearly complete subsidence of the pain and restored motion in all joints to a noticeable degree, besides causing partial disappearance of periarticular swellings. Improvement took place within eighteen hours and transformed the swollen painful condition of several weeks' duration into a much less acute one with wrists, elbows, shoulders, hips and knee joints showing decidedly more motion and the hands losing much of their puffy edematous appearance. The amelioration of symptoms lasted two weeks and then the joints partially relapsed again into their previous state of stiffness.

Enough observations have been made on six patients to establish the fact that ether does influence the arthritic process temporarily; and it is interesting to note that patients themselves first called attention to the matter by inquiring what had been done at the time of etherization for correction of deformities; they called attention to joints which had not been manipulated or touched in any manner, saying that these were entirely painless and could be moved much more freely than previously.

Stiffness slowly returns after a short period of time: in one instance only twenty-four hours elapsed between anesthesia and return of pain, but usually two to four days of freedom are observed and the longest period has been about two weeks. Very acute cases exhibit most pronounced changes, while chronic ones improve so slightly that the difference will ordinarily not be detected unless especial attention is paid to the matter. Another class of patients are made distinctly worse by anesthesia and these probably represent an infectious type.

The therapeutic value and effects of repeated anesthesias will be reported on at a later date when more data have been obtained. At the present time only the record is made that ether does have this unusual action.

Dr. Otto Folin of the Harvard Medical School has been sufficiently interested in the subject to agree to direct analyses of urines from these patients, and he may report on this part of the problem independently later.

The well-known property of ether utilized by gardeners in forcing plants may be identical with the stimulating property which ether exerts on arthritic patients. Johannsen, in Denmark, first showed that lilac shrubs developed blossoms much more quickly and of better quality if they were first exposed for forty-eight hours to ether vapor in a closed dark box and then set out and grown in the usual manner. Probably the action of the ether on the plants is similar to the effect it produces on arthritic patients and is a direct one on the protoplasm of the cells, which it stimulates and modifies in its metabolism. Experimental work done recently on ether anesthesia in animals tends to support this view, for Dr. P. B. Hawk[1] has shown there is an appreciable increase of nitrogen excretion in dogs after anesthesia with ether.

Starting with a conception of the arthritic process in these patients as due to unstable protoplasm which carries on its metabolism in a disordered manner, the variations in the joints are not surprising when the exceedingly complicated nature of the anabolic and katabolic processes are considered, and changes of weather, overwork, mental worry or unusual events of many kinds may easily be sufficient to upset the exceptionally delicate balance of the metabolic processes of these persons, so that idiosyncrasies exhibited by them may have more significance than ordinarily thought, and may have to be understood before treatment can be carried out effectively and with confidence.

Apparently the ether circulating in the blood temporarily stimulates the protoplasm into normal activity and increases the nitrogen metabolism for a short time.

The second patient is a doctor of 47 years, suffering with arthritis of nine months' duration and psoriasis of very pronounced degree. His history has the following significant points: Ether anesthesia did not diminish stiffness, pain or swelling in acutely swollen joints, but aggravated abdominal pain and caused a rise in temperature from 98.6 to 102 for several hours after etherization; while daily enemata of normal salt solution cleared the large intestine of unsuspected scybalous fecal masses. This treatment, combined with the use of fermented milk, allowed the arthritic and abdominal symptoms to subside slowly. The observations on this patient apparently seem to fix the location of the trouble in the intestines because other foci of infection were not found, the genitourinary tract being negative, tonsils having been removed and found normal, teeth in good condition, no defects in ears or lungs and acute infectious disease limited to a slight attack of grippe two years ago (1906) and typhoid fever when a boy. The relation of psoriasis to the arthritis is undetermined.

From the foregoing facts it can be seen that the large intestine was sufficiently deranged to account for all the joint symptoms; and irritations to the intestinal mucosa, which may be supposed to exist, judging from the dull uncomfortable abdominal feelings and the demonstration of unusual retention of feces, was sufficient to allow some of the multitudinous intestinal bacteria, their toxins, or their decomposition products to set up the arthritic process, as chronic gonorrheal inflammation of the urethra produces joint symptoms. Such a case as this must always be considered as lacking definite proof, however, for all sources of infection can not be eliminated. The small intestine, for illustration, which is so inaccessible for observation, may reasonably be expected to have chronic inflammations and derangements of its important function of absorption that influence arthritic processes to as important a degree as trouble with the large intestine or the throat. This case is suggestive on account of the definite findings in the large intestine which have responded to treatment. The improvement has not been a quick, clearly defined change or a complete one, but agrees with what might be expected from a slow chronic inflammation. It is evident that any work done on the intestinal bacteria will prove to be of value, and Dr. Theobald Smith has kindly agreed to have stools of arthritic patients examined under his direction at Harvard Medical School.

With regard to the effect of fermented milk on arthritic processes it seems that certain cases are benefited by it to an unusual degree, for Drs. Hoke and Andrews[2] have found that it influenced their patients

1. Hawk, P. P.: The Influence of Ether Anesthesia on the Excretion of Nitrogen, Jour. Biol. Chem., April, 1908, iv, Nos. 4 and 5.

2. Andrews, C. R., and Hoke, Michael: A Preliminary Report on the Relation of Albuminous Putrefaction in the Intestines to Arthritis Deformans, Am. Jour. Orthop. Surg., July, 1907, v, 61.

in Atlanta and one or two of Dr. Goldthwait's patients have shown a favorable tendency during its use; but the explanation that it acts by preventing intestinal putrefaction does not seem wholly adequate, as there may be other conceivable properties which it possesses in addition. For example, the milk may be unusually well absorbed by the small intestines of these patients or it may influence their digestive processes through its lactic acid. No proof of such action exists, yet it seems too much to attribute the entire action to inhibition of the growth of anaërobic organisms in so complex an organ as the intestines, because the facts do not agree completely enough with this theory.

The cases are given in detail as follows:

CASE 1.—*Patient.*—Schoolteacher, aged 35, single, a small, slightly built woman, nervous and ambitious, who had overworked and had recurring attacks of arthritis that involved nearly all joints, especially those in all the extremities.

Family History.—The patient's father had five attacks of acute rheumatism after he was 45 years old, which left the joints entirely free in the intervals between attacks except for a slight restriction of the knee motions; insomnia was thought to be an etiologic factor by the patient. The mother is living and has had no rheumatism except some stiffness in the hands. Two sisters are well. One sister has tuberculous kidney and lungs. One maternal aunt, two first cousins and the paternal grandmother died of pulmonary tuberculosis. There were no other joint troubles in the family beyond the father's rheumatism.

Personal History.—The patient's arthritis began at 3 years of age. She had scarlatina and measles when a child, pleurisy in 1900, influenza in 1897, carbuncle in 1903 and sore throat three times. Tonsillectomy was performed in 1906. She had acute neurasthenia in 1900, which lasted two years. She had curettage of the uterus done in 1906 to relieve dysmenorrhea and with hope of improving the articular symptoms. The patient worked her way through college and while there was under severe mental strain which she tried to overcome and forget by continuous application to the courses of study. She generally slept well but occasionally had insomnia. Her appetite was capricious and always poor. Her regular diet was supplemented by raw eggs, two to four a day. The total quantity eaten was always below the average. She used no stimulants. The patient had occasionally attacks of indigestion associated with nervous upsets. Her bowels were rather constipated, and menstruation was normal except for considerable pain.

Arthritic Symptoms.—These followed an injury which the patient sustained at 3 years of age; they began with an acute attack in the shoulders, knees and elbows that lasted the entire winter; at 7 years she had a second attack of arthritis which lasted about a year and affected the spine, legs and arms. Up to 18 years of age she had five acute attacks; in 1898 she had an attack involving all joints more or less; in 1900, when broken down nervously from overwork, she had also acute exacerbations of arthritis and since then she has spent most of her time in a wheel-chair and at hospitals. The patient returned home from Boston in the autumn of 1907, improved sufficiently to be able to walk and feeling the best that she had felt in ten years, yet still somewhat troubled with a stiff ankle and elbow. The last exacerbation came on gradually during the winter months of 1907-08, with pain gradually developing, which the patient purposely disregarded until suddenly all her joints became involved in an acute inflammation which came on within a few days and spread rapidly from the left ankle and right wrist throughout the entire body. For four or five weeks previous to admission to Corey Hill Hospital (April, 1908) the patient was prostrated with pain, fever and acutely swollen joints.

General Examination.—This was made in April, 1908, during the period of acute exacerbation. The patient was a pale, sick looking, poorly nourished woman of small stature. She had sustained a marked loss in flesh since the autumn of 1907. Practically all her joints, including the sternoclavicular and sternocostal articulations, were involved in an acute inflammatory process which was subsiding and most noticeable in both elbows, wrists, hands, knees and feet. Redness was visible only around the right elbow; swelling was present in the hands, wrists, elbows and feet, slight in degree except in the periarticular swellings of the fingers which still were badly swollen, edematous and hot. There was considerably atrophy of the interossei muscles of hands, and moderate sweating of the hands. Tenderness was exquisite in the finger-tips and toes so that bed-clothing could hardly be borne. Pain on movement was excruciating in the elbows, wrists, knees, ankles, left shoulder and right hip, while the right shoulder and left hip were considerably less painful; the spine was slightly affected and a sitting posture was assumed voluntarily as a relief from lying down. The sternocostal and sternoclavicular joints had been swollen and painful, making respiration difficult. There was no free fluid in the knee joints. The left elbow was in a plaster cast. The patient lay in bed, unable to sit up without assistance and not able to feed herself. Her temperature on admission to the hospital was 99; it had been 99 to 101 for several weeks.

Blood Examination.—This was made in April, 1908. Hemoglobin was 90 per cent., leucocytes, 5,000. Five cubic centimeters of blood, withdrawn from a vein and inserted into 200 c.c. neutral broth, showed no growth in five days when grown under aerobic conditions at a temperature of 37 C.

Teeth.—Dr. Edward Briggs examined the patient's teeth in November, 1906. They were in good condition. He reported that "there was nothing in her mouth that would cause any general infection."

The ears and mastoids were normal.

Throat.—Dr. Goodale made an examination in 1906, and reported: "There are several points of granulation of the throat in the region of the old operation but nothing that suggests an accumulation of pus or a source of infection."

Pelvic Examination.—This was made by Dr. Wolcott in November, 1906. She reported "ulceration of cervix with some discharge." Smears from the discharge examined by Dr. Rogers showed no diplococci and very few pus cells.

Urine.—This was normal during the summer of 1907; in April, 1908, it was clear; contained no sediment; was acid; sp. gr. was 1,025; contained no sugar or albumin, a few epithelial cells, no casts or pus cells. Indican was present in moderate degree.

Stools.—Examined repeatedly during the summer of 1907; these showed normal color, dry scybalous consistence and a foul odor. They were of small amount and passed regularly with cathartics daily; the bowels moved eighty times during a period of seventy days at the hospital. Microscopic examination showed approximately the usual percentage of meat fibers, fats and fatty acids, with considerable vegetable débris, the most marked characteristics being the small amount, foul odor and lumpy nature, with no evidences of inflammation.

Bacteriologic Examination.—This was made in April, 1908, and showed a moderate number of Gram positive bacilli in smears from the stool; cultures made under anaërobic conditions with pyrogallic acid and soda yielded a predominant growth of colon type of bacteria developing on neutral hydrocele agar in the thermostat. Streptococci and strict anaërobes could not be distinguished on the plate cultures. Twenty subcultures taken from suspicious looking colonies proved to belong to the colon type.

Fermented Milk Treatment.—For three weeks during the summer of 1907 "Kifilac" milk was tried without any result. The milk was prepared by fermenting it, after pasteurization, with a special lactic acid ferment called "Kifilac" and feeding it to the patient in quantities of two or three pints each day. The patient's condition at that time had been much improved by out-of-door treatment and general hygienic measures so that no great change could be anticipated and no apparent effect on the joints was noticed; the milk was so unpalatable as to take away the appetite and cause nausea.

Reaction to Drugs.—Acetylsalicylic acid (aspirin) has generally controlled moderate joint pain very well. Morphia administered freely during acute stages was said to have relieved the difficulty with respiration and to have influenced

the joints in an unusual degree; but when given during less acute stages caused nausea and upset the digestion without benefiting the joints especially. Quinin was said by the patient to be borne very poorly and caused acute swelling of the hands at the single time it was given. Ether taken at the time of the pelvic examination in 1906 caused improvement in the symptoms for one week after, and when taken again for removal of nasal spur in April, 1908, produced improvement for two weeks, as already described.

X-ray Examination of Hands.—Characteristic atrophic changes of moderate degree, especially in the carpal bones of the right hand, which were considerably thinned. There was very little destruction of cartilage and no displacements of bones.

CASE 2.—*Patient.*—A physician, 47 years of age, married.

Family History.—The patient belongs to a long-lived family. His father is 82 years old, healthy and robust. His mother died at 69 years of age with meningitis. Two sisters are living and well, and no others in family. There is some nodular rheumatism in the paternal uncles, but no rheumatic trouble in the mother's family.

Personal History.—The patient had typhoid fever of moderate severity at 14 years of age, and influenza of slight degree in 1906. A psoriasis began eight years ago, came on gradually and has persisted to the present time (1908) attaining unusually extensive distribution on trunk, scalp and extremities. There has been some chronic inflammation of throat for the past eight or nine years which has been relieved since tonsillectomy in March, 1908. For eighteen years he worked very hard at general practice with no vacation until two years ago (1906), but was able to get his regular amount of sleep until the past year, in spite of a great deal of night work. He had no sickness that incapacitated him; lately, however, he gave evidence of fatigue chiefly in the way of an unnatural irritability and the sensation of a constricting band about the head, also the feeling of the necessity for a rest after a long case of confinement occurring on top of a hard day's work. He is temperamentally neurotic but is under excellent control. His digestion has generally been good and his meals reasonably regular; the bowels were all right up to the time of arthritic symptoms. Three or four years ago a disagreeable uneasy feeling began to be noticed in the abdomen which did not annoy the patient much during the day but at night became a constant dull ache around the navel that could be relieved by lying prone in bed. The pain never became severe nor associated with nausea; considerable distention was constantly present. Dizziness of severe degree frequently came over the patient while lying in bed until finally he consulted a doctor who gave him Epsom salts daily and ultimately relieved the abdominal symptoms and dizziness. He had no trouble with his ears or genito-urinary system; occasional colds in the winter; he has had some vasomotor disturbance in the hands on the beginning of cold weather.

Arthritic Symptoms.—Two or three years ago (1905-1906), the patient noticed a gradually developing stiffness of the back and legs for a few minutes on getting out of his carriage after a long drive. In September, 1907, there came very suddenly a red painful swelling in the second left toe but no fever at that time; in two weeks the right knee swelled and was painful and tender to touch. There was no fluid or redness about the joint. In this state the patient kept on for two months until early in December, 1907, when the jaw, left shoulder and slightly later, the little finger and wrist of the right hand became involved. The onset was sudden and very painful, and was attended with a degree or so of fever for two or three days. Since then the toes of the left foot and both ankles and left hand have been included among the affected joints.

The patient entered Corey Hill Hospital in March, 1908.

General Examination.—The patient was a fairly well developed and poorly nourished man, with hair quite gray. He walked with considerable limp in right leg; got up from his chair stiffly and moved guardedly.

Joints.—Jaw motion was so restricted that the tongue could with difficulty be protruded between the teeth. The shoulders, elbows and wrists seemed normal, both in motion and appearance. The three outer fingers on the right hand showed considerable spindle-shaped swelling without heat or redness. There was some restriction in motion and a slight swelling over the ulnar styloid of the right wrist. Both ankles were slightly swollen. The toes at the juncture of the phalanges and metatarsals were considerably swollen on the right foot and to a less degree on the left foot. The ankle joint motions were not particularly restricted. There was considerable villous thickening around the tendon sheaths below both internal and external malleoli. The right knee was two centimeters larger than the left one in circumference, with moderate degree of capsular infiltration; there was no fluid or heat, or restriction of motion. There was considerable atrophy of the thigh; the spinal motions were free.

Tonsils.—Tonsillectomy was performed March 14, 1908, by Dr. Mosher. The report on the microscopic condition of the tonsils is as follows: "1. Unbroken capsules which appear in the sections as continuous bands of fibrous tissue. 2. A marked decrease in the lymphoid elements, with a corresponding increase of fibrous tissue. 3. A very thick epithelium lining the crypts, backed by an unusually thick propria. 4. Bacteriologic examination of the contents of the crypts and of sections of tonsils showed nothing unusual. Cultures from the crypts contained *Staphylococcus albus* and *aureus* and a few streptococci. Sections show staphylococci and fusiform bacilli in the crypts. The histologic structure of these tonsils warrants a belief that they were not a source of infection."

The teeth were in good condition. The ears and mastoid were negative.

Blood.—Hemoglobin was 90 per cent., leucocytes 4,500. Two cubic centimeters of blood taken from a vein of the arm and introduced into 200 c.c. of neutral bouillon showed no growth in thermostat in eighteen hours or after five days (April 17, 1908). Five cubic centimeters of blood taken from a vein of the arm and introduced into 50 c.c. of neutral hydrocele bouillon (one part hydrocele fluid and two parts neutral broth), and grown under partial anaërobic conditions (pyro and soda), showed no growth in eighteen hours or after five days (April 29, 1908).

Urine.—This was examined by Dr. Oscar Richardson. There were 47 ounces in twenty-four hours. It was clear, pale and acid. Sp. gr. was 1.007. There was no sugar or albumin and little if any sediment. There were 5.6 gm. of urea. Indican was present in small amounts in a second examination made April 14, 1908.

Abdomen.—This was symmetrical, soft and tympanitic. There was no visible peristalsis or distention and no muscle spasm. There was a slight tenderness on deep pressure in the neighborhood of the navel, and a palpable mass in the cecum before the bowels were thoroughly evacuated, which then disappeared. The skin of the abdomen was extensively covered with continuous blotch of psoriasis girdling the waist.

The heart and lungs were negative.

The temperature was normal.

The urethra was normal.

There was no stricture of the rectum. The prostate was negative; the prostatic secretion was not examined.

Bowels.—After the patient's admission to the hospital, bowels moved daily with considerable irregularity, and, although hard fecal masses were retained in the cecum, there were two or three loose evacuations each day. Two movements per day were the average frequency. The stools were of solid consistency generally, and of normal quantity and color and with usual fecal odor. Microscopically, no appreciable evidences of inflammation were made out; no pus cells or excessive amounts of desquamated epithelium; no blood or large amounts of mucus; there was the usual percentage of meat fibers and fats.

Bacteriologic Examination.—April 14, 1908. The predominant bacteria, developing anaërobically on hydrocele agar at 37 C., belonged to the colon type of organisms; no coccal forms were found in twelve tubes from which subcultures were made. Each agar plate showed four or five large white opaque, roughly spherical colonies developing in the depths

of the medium, which, when transplanted to lactose agar and grown under aërobic conditions, soon died out before their cultural characteristics were determined. Six subcultures were examined microscopically, and all exhibited an interesting variation in morphology, to which Dr. C. A. Herter of New York City has already called attention, namely, a variation from bacillary to coccal form. Surface growth on lactose agar in the air showed large, long bacilli, while in the depths of the same medium long chains resembling streptococci predominated, and twenty-four hours after the subculture had been made from the original colony grown under anaërobic conditions on hydrocele agar, all stages from typical coccal to long bacillary forms could be made out. This was not a mixed culture, because all the other tubes showed the same condition, and it is interesting because it shows that dependence can not be placed to a great extent on the appearances of fecal smears as indicating the relative proportion of coccal forms.

A second examination, made April 29, showed that the predominant bacteria belonged to the colon type, with no streptococci or anaërobes when grown under conditions as described before. The bacillus found in the previous examination disappeared for some reason, possible on account of the fermented milk treatment.

X-Ray Examination.—The process was shown to be an infectious arthritis. There were no changes in cartilages; the periosteum of the shafts of the metacarpal and the basal row of the phalangeal bones was thickened; there was no atrophy of the bones. The bony trabeculæ in the carpal bones and in the cancellous ends of metacarpal and phalangeal bones were obscured and blurred by the infectious process.

Sequence of Events in Hospital.—On the patient's admission the arthritis involved his right acutely, which presented a swollen, edematous appearance, while the left hand was normal. Pain in the lumbar and cervical regions of the back interfered with the patient's sleep and prevented him from lying on his side. His jaw was tightly closed, necessitating special food. His right shoulder, knees and ankles were stiff, his knees painful when walking, and his ankles slightly swollen. His condition varied considerably from day to day. From April 23 to 30, milk fermented with a culture of lactic-acid bacteria was given in quantities of three glasses a day, and apparently made the edema of the hand disappear appreciably, although the pain was not influenced. The treatment was then stopped. From May 2 to 10, daily enemata of warm normal salt solution were allowed to run into the large intestine slowly until expelled. During the first day or so abdominal discomfort from increased peristalsis proved annoying, and for the next few days small hard fecal masses were passed, and finally, on the eighth day, the large intestine cleared itself of an enormous quantity of fecal matter after great effort, accompanied by such severe pain that the patient cried out in agony and imagined that he had an intussusception of the bowel. Enemata were temporarily discontinued to allow the bowel to quiet down. During this period of increased peristalsis a new crop of psoriasis blotches appeared and the swelling of the hands became noticeable. Dizziness, which had been complained of in a previous intestinal upset, also returned to slight degree. From May 10 to 20 there was slow subsidence of abdominal discomfort and continuance of swelling in hands. On May 20, ether anesthesia was tried for twenty minutes until muscles were completely relaxed. This treatment was followed by a rise of temperature to 102, lasting a few hours and subsiding on the next day. Pain returned in the abdomen, which required morphin to control it for the first night. During the next few days following anesthesia the swelling in the left hand became more apparent and abdominal pain slowly disappeared. From May 23 to July 1, daily enemata and fermented milk, resumed in combination, caused a slow partial subsidence of arthritic and abdominal symptoms.

The effect of ether on this patient was strikingly different from the other case cited; in this instance the symptoms were made distinctly worse instead of being markedly improved, as with the other person.

Two other observations, which seem to be extremely significant and which strengthen the arguments for a metabolic type of arthritis, should be mentioned before concluding this report. Both cases occurred in Dr. Goldthwait's private practice, the first being a woman showing atrophic changes in the joints, whose arthritis entirely cleared up during a pregnancy and returned again two or three weeks after childbirth. The second person was a middle-aged man who was entirely relieved temporarily of his atrophic arthritis during his convalescence from lobar pneumonia. Additional evidence is furnished by Dr. T. S. P. Strangeways,[3] who reports similar cases showing improvement in arthritic symptoms during pregnancy that returned after childbirth. These facts are reasonably explained by the changes in metabolism which occur in pneumonia and also during pregnancy; for it is well recognized that marked variations in nitrogen excretion are demonstrable in such cases, and suggest a similarity to the improvement observed by ether anesthesia with its accompanying increase of nitrogen excretion. Although no conclusions can be reached at the present time, yet observations already made tend to differentiate a class arising from deranged metabolic processes rather than from chronic infections. These cases exhibit atrophic bone changes and are improved by various agents, as ether, infections and pregnancy, which stimulate the cell protoplasm to increased normal activity.

This report is a very incomplete one, but enough has been shown, it is hoped, to indicate the nature of the work and the organization which permits cooperation between clinical and purely scientific men. Dr. Charles G. Weld, of Boston, has started the research on a very satisfactory financial basis by furnishing sufficient money to pay for salaries of bacteriological and chemical laboratory assistants, special nurses, diets, *x*-rays, photographs and other incidental expenses.

EARLY TREATMENT OF SOME SUPERFICIAL CANCERS, ESPECIALLY EPITHELIOMAS.

BY PURE RADIUM BROMID RATHER THAN OPERATION OR X-RAYS.*

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In 1900 Dr. William Rollins of Boston suggested the use of the radiations from radium salts as a therapeutic agent and put capsules containing radium into my hands. The salts then obtainable were not powerful enough to be efficient. To Dr. Rollins, nevertheless, so far as I am aware, is due the credit of being the first to realize the probable value of these radiations as a therapeutic agent.

Nearly five years ago I obtained about two grains (120 mg.) of pure radium bromid and about one hundred grains of the impure salts, and soon after published some tests made with them and clinical results.[1] The pure salts I have used in tubes or capsules containing 50 mg. and 10 mg., respectively, but the cases I shall describe have been treated ordinarily with capsules con-

3. Bulletin of the Committee for the Study of Special Diseases, August, 1907, p. 76.

*Presented with a demonstration of more than twenty patients, at the Surgical Section of the Massachusetts Medical Society, June 9, 1908.

1. A Comparison Between the Medical Uses of the X-Rays and the Rays from the Salts of Radium, Boston Med. and Surg. Jour., 1904, cl, 296-299; Notes on Radium; Production of the Gamma Rays from the Beta Rays from Radium; Use of Radium in Some Diseases of the Eye, ibid., 559-561.

taining 50 mg. These have been used both by Dr. S. W. Ellsworth and myself at the Boston City Hospital, as well as for my own patients.

Sometimes in the so-called treatment by radium the preparations used have been weak and inefficient.

Before using radium it seemed to me important to make a study of the beta and gamma rays. My experiments showed that, determined by the fluorescence produced, there was fourteen times as much of the beta as of the gamma rays given off, and that the beta rays could be excluded by an aluminum plate of suitable thickness, which, however, allowed all or nearly all of the gamma rays to pass. Clinical tests indicated that the beta rays had the chief therapeutic value. They do not penetrate deeply, but may eventually reach the deeper portions of a new growth by first destroying the outer portions layer by layer, and then attacking the parts that in the beginning were more than half an inch from the surface.

Before dismissing the gamma rays from consideration, it should be said that they have a value in some painful affections, for example, in certain forms of facial neuralgia. Care must be taken when using them to exclude the beta rays or the patient is liable to be burned by the latter while subjected to the action of the gamma rays. Burns have been reported from France when patients were treated for neuralgia without excluding the beta rays.

Such a small quantity of radium as 50 mg., or less than a grain, can not conveniently be used to treat a disease that extends over a very large area as well as can the *x*-rays. In a general way, it may be said that radium is better adapted to somewhat limited areas rather than to the larger ones, which may be easily covered by the *x*-rays at one exposure.

The rays from radium issue spontaneously and continuously, and as far as we know are uniform as to quantity and quality, so that it is easily possible to give an exact dosage. This is in marked contrast to the conditions which prevail in regard to the *x*-rays.

It is not my intention to suggest that treatment by radiations from radium—or more accurately by the beta rays—makes other forms of treatment obsolete, but only to indicate that certain of the patients hitherto treated by such remedies as caustics, operation or *x*-rays may advantageously be treated by radium instead.

In applying radium the capsule, containing 50 mg. of the pure salt, at the end of a handle a foot or more long, should be held over each area to be exposed for a period varying from one-half to three and sometimes four minutes. With this amount the exposures should be made from one to three times a week, less often after healing has begun, according to the disease to be treated. For the sake of cleanliness the capsule should be covered with a new rubber cot for each patient. No pain accompanies the treatment and there is no sensation except that produced by the contact of the rubber. Improvement in suitable cases follows usually within two or three weeks and sometimes within a shorter period.

I shall now present some of the results obtained in a series of cases[2] which have been subjected to the action of pure radium bromid. Certain of them were exposed to both radium and *x*-rays, but I have omitted those in which the *x*-rays probably played an important part. The cases have included lupus erythematosus, lupus vulgaris, trachoma, psoriasis, acne, eczema, keloid, tuberculous dactylitis, vernal catarrh, chronic ulcer of the leg, warts, rodent ulcer and epithelioma.

Before considering the results obtained in these two latter diseases, a few words in regard to certain of the others may be of interest.

In *lupus erythematosus*, radium was not of any service in two cases, but a third patient seems to be improving.

All the ten cases of *lupus vulgaris* have done well. In two of them a comparison was made between the value of radium and the *x*-rays by treating one-half of a considerable area with the *x*-rays and the other half with radium. The radium proved to be more efficient than the *x*-rays.

In two cases of *trachoma* the results were somewhat encouraging.

In cases of *acne, eczema, psoriasis, warts* and other skin diseases in which the diseased area was limited, radium has shown itself a useful agent.

In two cases of *keloid* of small area, one-half of the diseased tract disappeared when treated by radium more quickly than the other half treated by the *x*-rays.

There is, I believe, another opportunity for the use of radium to which I shall only refer in this paper, and that is the treatment of certain glandular structures. It seems to me that the attempt might well be made to treat adenoids by means of radium.

In seventeen cases of *rodent ulcer* treated by radium in this series, the lesions in eleven cases healed; in one it healed, but recurred later; in four it did not heal; and one is still under treatment. The average duration of the disease in these cases, before treatment was begun, was ten years. I believe that better results might have been obtained if patients had come earlier and if the radium had been used more vigorously.

Of the cases of *epithelioma* in this series there were sixty-nine, and the success that followed the use of radium in this largest and most important group has been the chief reason for the presentation of this paper. The average duration of the disease before treatment was begun was four and one-half years. In fifty-six cases the lesion healed; in one it did not heal; four are under treatment, and eight patients discontinued treatment; but these last, with one exception, were all doing well at that time.

These sixty-nine epitheliomas do not include pre-epitheliomatous growths. They are divided as to sites of the disease as follows:

	Total	Healed	Not healed	Under treatment	Discontinued treatment
Lower lip	14	11*	..	1	2
Lid	9	6	..	1	2
Face	24	20	1	1	2
Auditory canal	1	1	0	0	0
Ear	1	..	..	0	1
Hand	1	1	0	0	0
Nose	19	17	..	1	1†
	69	56	1	4	8

*In one of these eleven lip cases a gland, just under the angle of the jaw, became somewhat enlarged four months after the lip had healed and has been removed since this paper was read. Prof. F. B. Mallory reported it to be cancerous. There has been no recurrence on the lip. This case shows that the action of radium was local and indicates the importance of its early use. When desirable, radium may be supplemented by suitable treatment of the neighboring glands.

†A feeble man, 76 years old, who died suddenly while under treatment after being out on a very cold day. All the others, except one, were doing well when they discontinued treatment.

2. Since this series of cases was tabulated I have been using radium on the tonsil of a patient with results which are thus far satisfactory; also for a woman with a new growth one and a half inches long and more than a half inch in diameter, surrounding the urethra; an operation in her case would mean life-long disability.

As the length of time that has elapsed after healing is a very important consideration in estimating the value of a remedy, I should state that of the fifty-six healed patients, twenty-three have been well for two years or more, nine of these twenty-three for more than three years, and two for more than four years. Recurrence took place in two of the twenty-three cases, in one a year and in the other two and one-half years after healing, but yielded to further treatment.

Let me describe one case:

This patient had a typical epithelioma of the lip about one-half inch in diameter in the mucous membrane of the lower lip not far from the median line. It had begun slowly with a little roughening and irritation of the mucous membrane; this spread and later the disease progressed more rapidly. Various powders and other simple forms of treatment had been used for more than a year after the first symptoms appeared. At the end of this time the patient came to me and was treated with radium and all other treatment was omitted. The exposures were given twice a week for six weeks. Three days after the first exposure the crust came away, leaving a rough surface containing holes as if roots had been drawn out. A week later these openings had filled up and the induration had diminished. After ten days the ulceration was less indolent in appearance. After fourteen days there was a clean, oval ulceration with a narrow, contracting circle of scar tissue around the edge. After seventeen days the appearance seen was that of a healing ulceration and the induration had nearly if not quite disappeared. All this improvement took place after only five exposures of three to four minutes each, and was so rapid that some improvement was noticeable at every visit. When healing was complete, at the end of six weeks, the mucous membrane of the lip where the epithelioma had been did not differ in appearance from that of other parts, but there was a slight depression as a result of the loss of substance.

On the other hand, the rays from radium may at first make the diseased area look worse. For example, one of my patients had a wart on the side of the nose which had been torn off and irritation and ulceration followed. The application of radium caused an increase in the redness, swelling and discharge. The treatment, however, was continued, and after a few exposures the discharge and swelling subsided, the induration disappeared and the ulcer healed rapidly. It seemed as if the indurated base had to be got rid of before healing could take place.

In one case, an epithelioma of the face yielded to six exposures of one to two minutes each. This case was of a year's duration when treatment with radium was begun.

In epitheliomas of short duration the improvement seems to be prompt. By this I mean that the sensation and soreness diminish or disappear, the diseased area becomes less congested and less aggressive, and the disease appears to be arrested in its progress in two or three weeks or sometimes less. Considering, first, that epitheliomas may begin to improve promptly, second, that they have healed well when properly treated with a suitable amount of pure radium bromid, and, third, that, speaking generally, epitheliomas that have not been operated on seem to do better when treated with radium than those on which an operation has been performed, and then radium treatment begun, I believe that radium should be employed in early epitheliomas before any other treatment is used.

Anything which might give rise to an epithelioma, such as a wart which has been irritated or torn off, or a small intractable spot of apparent eczema, or other starting points of epithelioma which do not heal in a few weeks or months, should be submitted to treatment by radium.

It is interesting to note that surgeons and their relatives have come for this painless treatment rather than submit to operation, and thus far they have done well. It is probable that when patients realize that there is a painless remedy, they will submit themselves for treatment earlier than did those in the series which I have briefly outlined (average duration in the cases of rodent ulcer ten years, epitheliomas four and one-half years); and we may hope, too, that they will come for treatment for such things as do not heal readily and might lead to some serious growth. Under such circumstances the results should be even better than those which I have thus far had. But even now unless one has watched such a series of epitheliomas as I have described, and seen so many of them heal and in many cases leave so slight a scar that the site of the disease is not easily recognized, it would be difficult to believe that such benign results could follow the use of a remedy that can not be seen or felt.

Treatment by radium should be begun early and Nature must do her share. Healing under the most favorable circumstances may take place after less than a dozen exposures; in other cases a much greater number will be necessary, as in treating old and feeble patients or patients with a poor circulation the remedy must be used cautiously in order to do good only. In such patients healing goes on slowly, or they may have so little vitality that they do not respond, so that after the radium has done its work of destroying the diseased tissues healing does not take place.

Experience and judgment will guide the physician in giving the amount necessary to cause healing without overexposure which would result in irritation and a burn, and with care no harm will be done. At the same time, if radium is timorously used good results will not follow or will come only after unnecessarily prolonged treatment.

CONCLUSIONS.

1. The radiations from radium are uniform in quality and quantity and thus this remedy has a great advantage over the *x*-rays in efficiency and safety.

2. The gamma rays from radium are useful in some cases for relieving pain. They have great penetrating power. When they are used as an analgesic the beta rays should be excluded or the patient may be burned, because the proportion of gamma rays is so much smaller than that of the beta rays that the exposure must be much longer when the gamma rays are used, to make them effective.

3. The beta rays from radium are the useful rays in the treatment of rodent ulcers, epitheliomas, and other superficial diseases. They can be applied in the mouth and other cavities.

4. Radium should be used early, and in suitable amount and strength. The treatment is painless and leaves the least scar.

5. Radium does not produce as good results in cases in which an operation has first been done or scraping, caustic, or other irritating treatment has been used, or the *x*-rays have been applied.

6. Improvement follows the use of radium more promptly in many cases than the use of the *x*-rays and the total duration of treatment by radium, though sometimes long, is much shorter than with the *x*-rays. In some cases success has followed the use of radium where treatment by the *x*-rays has failed.

7. A surprisingly large proportion of external cancers, especially epitheliomas, have healed and remained

healed for some years under treatment by radium and my experience thus far indicates that for certain cases of external new growths it is a better remedy than those previously at our command.

8. Recurrences follow all methods of treatment, and radium is no exception, but so far as present experience goes this is unusual and they have yielded to further treatment by radium.

9. The disadvantage of radium is its cost to the physician.

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CLINICAL ASPECTS OF TUMORS OF THE MEDIASTINUM.

WITH CONSIDERATION OF THE FINDINGS IN FOUR CASES.*

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The records of hospitals and postmortem rooms show that mediastinal neoplasms, whether primary or secondary, are uncommon. Of more than 7,500 autopsies on patients dying from all causes at the Marine Hospital, Cronstadt, one in fifty exhibited mediastinal growths. It has been estimated that one medical patient in 10,000 shows mediastinal tumor of some form. Of more than 25,000 general hospital patients at the University of Michigan Hospital, there have been, perhaps, a dozen cases of tumor of the mediastinal structures. It is extremely interesting, therefore, that within the past year and one-half there have come under observation four cases in the Medical Clinic presenting strong presumptive evidence of mediastinal growth and, in addition, two in which the diagnosis was suspected. Perhaps this increased ratio is largely due to the increasing perfection of clinical aids in the examination of patients generally.

The four cases furnishing the material for this communication are interesting from many standpoints. One of them, a case of chronic cyanosis with erythremia, is unique. The diagnosis in all instances was presumptive, so far as absence of postmortem material is concerned, but sufficient evidence is at hand to make the conditions reasonably certain. All the patients were adults. There were three males and one female. The youngest patient was 43, the oldest 67. They came to the hospital for such ailments as heart disease, asthma, chronic bronchitis, Bright's disease and laryngeal obstruction. Three of the patients appeared to have affections primary in the thorax. In the female the process was evidently secondary. Two patients had rapidly-spreading, malignant growths, and death supervened within less than a year after they came under observation. In the remaining cases the neoplasmata are apparently of slow growth and the patients have been affected for some years.

REPORTS OF CASES.

CASE 1.—This presents the clinical picture of chronic cyanosis, with variable erythremia, but without evident splenic enlargement; attacks of asthmatic dyspnea; albuminuria; involvement of the mediastinal tissue as shown by symptomatic, physical and radiographic examination.

Patient.—There was sent to the medical clinic in January, 1907, an American laborer, aged 43, with complaints of difficulty in breathing, palpitation, frontal and occipital headaches, chronic cyanosis, dropsy and general weakness.

History.—The family history of the patient was negative, with the exception that his mother recently had an amputation for a thyroid tumor in the right tibia. Up to the age of 30 the patient was in good health. At this time he began to have asthmatic attacks, coming on at irregular intervals, usually at night. The patient's habits were good, and there was no history of specific disease. About six years before entering the hospital, he had what he termed a severe attack of "asthma," at which time his "wind was shut off sudden" by a "pressure just at the top of the breast-bone," and he became unconscious. He remained so for a few minutes. He had palpitation of the heart for some time afterward. About four years since he noticed blueness of his face, hands and feet, with variable swelling. He took medicine and believed that the blueness almost disappeared. It did not again become marked until September, 1906. At this time palpitation and cardiac distress, together with blueness, were so marked that he consulted a physician, who informed him that he had heart disease. He was put on treatment, but relief was only temporary. His blueness increased, becoming especially marked when he worked or when he was excited; palpitation and dyspnea became more troublesome. He began to have severe frontal headaches, was frequently dizzy and his eyes became prominent. A feeling of thoracic constriction was almost constant, particularly when he lay down. This feeling was most apparent in the region of the nipples. A blow on the chest or pressure downward from above the sternum produced a sensation of "smothering." There was no difficulty in swallowing, and no marked gastrointestinal disturbance.

Examination.—This revealed a man of medium build, with thin panniculus. There were no pronounced evidences of emaciation. Over the face and neck, particularly the nose, chin, lips and ears, there was a startling degree of cyanosis. The hands and feet were moderately blue, particularly so when the patient stood or allowed his arms to hang down. Then the cyanosis came on almost instantly and the peripheral veins were markedly prominent. When the patient lay down the face and neck were slaty blue. The cyanosis was less marked after he had lain for a few minutes. Exercise and psychic disturbances deepened the color perceptibly. The palate and tongue were deep purple. The eyes were very prominent, especially the right eye, that eyeball protruding 6 mm. further forward than the left. The conjunctivæ were suffused, the right more than the left. The pupils were of moderate size, equal and active. The external jugular veins were injected and prominent. They filled from above. There was moderate pulsation of both carotids, rather more on the right. The thyroid was negative. There was no tracheal tug. Over the trunk the skin had a bluish cast. There was a fine punctate eruption over the chest (medication?). The thorax moved *en cuirasse*. The inspirations were shallow and not accompanied by much abdominal movement. There were no visible Litten's shadows, but there was slight inspiratory retraction in the lower axillary spaces. The respiration rate was not increased when the patient lay quiet. It was rapidly increased on even slight exertion. The heart beat was faintly visible in the fifth interspace, well inside the nipple. It was not increased in rate. Palpation of the lungs was negative.

Percussion is indicated in Figure 1. The liver dulness was low, the spleen barely made out. There was an abnormal substernal dulness, with an atypically situated precordial outline. The areas of dulness did not change with change in position of the patient. Outside the areas of actual dulness there was a poorly defined zone of diminished resonance. Traube's space was tympanitic in a small area in front. The liver dulness began at the tenth rib in the mid-scapular line, posteriorly.

Auscultation of lungs: There was diminished vesicular breathing throughout the entire right side to the fifth rib. Below, the inspirations were sharp and blowing, the expira-

* From the Clinic of Internal Medicine of Prof. George Dock.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908. Because of lack of space the article is here abbreviated by the omission of a review of the anatomy and the symptom-complex, but the complete article appears in the Transactions of the Section and in the author's reprints.

tions soft and prolonged. Over wide areas there were few piping râles. On the left there was bronchovesicular breathing to the second rib, with increased vesicular breathing below. The râles were more numerous and more pronounced on the left than the right. The voice, both spoken and whispered, was negative. The examination of the back added nothing to the picture.

Auscultation of the heart: All sounds were heard with difficulty. The first sound at the apex was heard best two fingers' breadths inside the mid-clavicular line in the sixth intercostal space. The sounds over the base were best heard in the fourth left space and beneath the adjacent sternum. The first sound at the apex was soft and somewhat impure; the pulmonic second sound was moderately accentuated. The radial pulse was slow, of moderate size, and fuller on the left than on the right. There was moderate sclerosis of the radials. The blood pressure varied with the side tested. On the left, the pressure was, systolic 156 mm. Hg, and the diastolic 109 mm. On the right the systolic pressure 146, the diastolic 98, with the Erlanger apparatus 12 cm. cuff.

Abdomen was somewhat distended in the region of the navel. The liver was felt with difficulty at the end of inspiration. The spleen was not palpable in whatever position the patient lay. There was no palpable mass in the abdomen. The glands were negative.

Eyes: There was moderate conjunctival injection; the retina and head of nerve were edematous; there was marked venous engorgement; no hemorrhages (Professor Parker).

Nose: There was partial occlusion of the left nasal fossa.

The larynx was negative.

Blood examination: Erythremia was noted from the first. At entry, as seen in Chart 1, the red-cell count was 6,450,000. The hemoglobin was 100 per cent. plus. The white cells were about 6,500. The blood was very deep red, flowed slowly and was extremely viscous. It was spread on a slide with great difficulty. There was nothing peculiar about the shape or the size of the red cells. No nucleated reds were seen. The differential white count was as follows: Small lymphocytes, 14.8 per cent.; large lymphocytes, 3.8 per cent.; polynuclears, 67.6 per cent.; eosinophile polynuclears, 3.8 per cent.; mast cells, 1.6 per cent., and degenerates, 8.4 per cent. Further consideration of the blood appears below.

Urine: This contained a moderate amount of albumin, with many small, finely and coarsely granular casts and numerous cylindroids.

Fluoroscopic examination: A diffuse, non-pulsating shadow lay above the heart. It was especially dense about the root of the lung and the great vessels. It could be followed up into the neck. The heart was downward and inward. The diaphragm was low down on both sides, especially on the right.

Radiogram: The fluoroscopic findings were confirmed. The mass evidently filled the mediastinum and was almost as dense as the heart. No definite lines of pulsation could be seen. The tumor appeared to occupy both mediastinal spaces, lying in close approximation to the heart, lungs and their adnexa. Here and there points of greater or less opacity might be seen in the lungs and pleura. There appeared to be more infiltration to the left than the right.

Subsequent History.—The patient was kept quiet for a few days, and in view of the high blood pressure and cyanosis, put on purges and nitroglycerin. He improved and was soon up and about. His remaining history to date is particularly interesting. It may be roughly divided into two periods. The first was a stage of moderate cyanosis, with erythremia, in which the patient was generally comfortable and able to do light work. There were days when the cyanosis was rather marked, and when feelings of fulness, with difficult breathing, were complained of. This was especially the case when the patient worked hard or became excited. There was little nocturnal dyspnea. The blood pressure was generally lower than at entry, either because of the rest or potassium iodid, or both. It gradually fell to an average of systolic 96 and diastolic 75 mm. Hg.

The second phase of the history comprised periods of extreme cyanosis with more or less pronounced erythremia; marked dyspnea, bearing usually some relation to exertion or excitement, associated with unconsciousness, stupor or apathy; disturbances in vision; paroxysmal headaches; albuminuria and gastrointestinal symptoms.

Marked Clinical Manifestations.—1. Cyanosis. As stated, the patient was always cyanotic. There have been, however, since he came under observation, seventeen "attacks" of extremely pronounced cyanosis, general in character, but especially involving the head, neck, upper part of the thorax, and the extremities. At these times the color of the face and the extremities was a dusky, slaty purple, while over the trunk the skin had a bluish cast. On several occasions there was slight nose bleed. There was never bleeding from the mucous surfaces. Hematuria was not observed. With the occurrence of the cyanosis, the patient suffered extreme dyspnea. The respirations were greatly accelerated and the inspirations audible and slightly crowing. The expirations were prolonged, and sometimes accompanied by an expiratory grunt. In these attacks the voice was hoarse, or merely a low-pitched whisper. Sensations of pressure in the substernal region, with feeling of suffocation, palpitation with or without precordial distress were complained of. The dyspnea sometimes lasted for but a few minutes, then again persisted for half an hour or as long as the greater part of a day. The attacks were frequently followed by days of added cyanosis and prostration. During the attacks the heart rate was accelerated, going as high as 130 when it had previously been in the neighborhood of 60. There were never evidences of actual cardiac incompetency. The peripheral vessels were greatly injected, but positive venous pulsations were not observed. Auscultation of the lungs in the acute attack revealed an almost entire absence of breath sounds, with few high-pitched musical râles. The eye-grounds generally showed extreme engorgement of the retinal vessels with marked edema of the fundus. The right eye was sometimes very prominent, and there was a noticeable increase in intraocular tension. The conjunctivæ were markedly suffused, particularly the right one.

2. Erythremia: Coincident with the attacks of added cyanosis and dyspnea, there were generally noted changes in the red-cell count and the hemoglobin. The white-cell count was sometimes altered, in proportion. These blood changes were usually in proportion to the severity of the "attacks," but not always so. As will be seen from Chart 1, there were periods of intense cyanosis with red-cell count not greater than 6,500,000. On several occasions there were days of pronounced cyanosis, without acute dyspnea, when the red-cell counts ranged from 7,000,000 per c. mm. to as high as 9,000,000. Differences in count were noted, varying with the part of the body from which the blood was taken. For example, the blood taken from the toe in one attack gave red cells 7,780,000; that from finger, 7,200,000; while that from the ear was 8,020,000 cells per c.mm. The hemoglobin was not estimated at this occasion. On another test, when the cyanosis was not very marked, the finger gave 6,260,000 red cells per c.mm. with hemoglobin 136 per cent. (Miescher); that from the toe 6,860,000, with hemoglobin 156 per cent., while the blood from the ear was 7,010,000, with hemoglobin 144 per cent. It will be seen that the hemoglobin appeared to vary with the vascular distance from the heart, rather than with the actual increase in the red-cell count. The highest blood counts were recorded during the attacks of most acute dyspnea and cyanosis. There were six occasions on which the red-cell count ranged from 7,250,000 per c.mm. to as high as 9,260,000 per c.mm. On one occasion there was a period of ten days when the count was above 8,000,000 per c.mm. The white-cell count was not always proportionately increased. (Chart 1.) The counts were never much higher than 10,000. The hemoglobin estimations could not be made with the ordinary Tallquist scale. With the Miescher apparatus, and with dilution to twice the usual extent, the estimations always ran considerably above 100 per cent. (Chart 1.) The variations were from 105 per cent. to 156 per cent. The relation of the increases to the erythremia and the attacks of cyanosis and dyspnea is well shown in the chart. During the period of prolonged cyanosis already mentioned with counts above 8,000,000 per c.mm., the average hemoglobin reading was 132 per cent. (Miescher).

The differential white-cell counts showed very little variation from that already cited. More recently, there was a slight increase in the eosinophiles, and small lymphocytes, with the appearance of a rather large proportion of myelocytes following one of the acute attacks. Nucleated red cells were noted. During none of the attacks was the spleen palpated. Recently, an estimation of the specific gravity of the blood by Hammerschlag's method was 1.062, when the red-cell count was 7,400,000. The coagulation time was difficult to estimate with the pipette method, because of the extreme viscosity of the blood. By the slide method, coagulation was frequently complete at the end of a minute in an ordinarily warm room. It was often less than this. Unfortunately, no estimations of relations between corpuscles and plasma nor the amount of alveolar carbon dioxid are at hand.

3. Unconsciousness: In one of the attacks unconsciousness lasted for several minutes. There was partial consciousness with urgent dyspnea for nearly half an hour following, and the patient was apathetic for several hours.

4. Disturbances in vision: These were frequent. At times there were merely spots before the eyes with blurring of images. On one occasion, there was diplopia. During the most severe attack of dyspnea, "everything turned black" before unconsciousness supervened. The pupil on the right was generally dilated during the dyspneic periods. Strabismus was not noted. The eyeballs were both prominent, particularly the right.

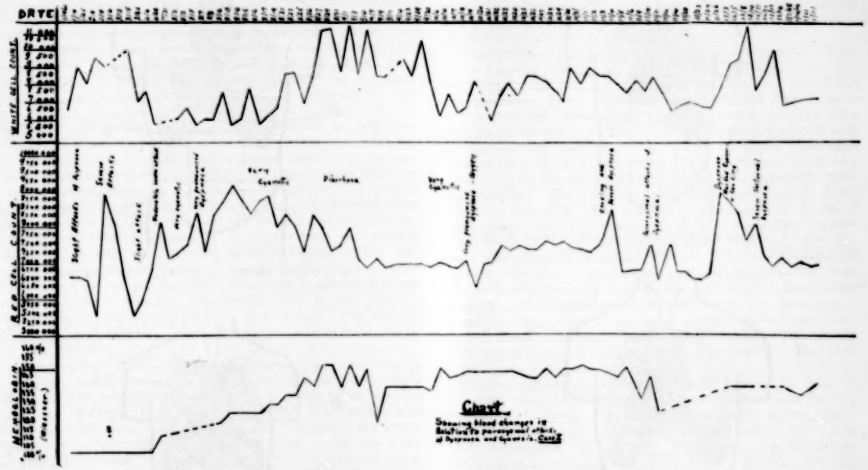
5. Albuminuria: This was present at the time that the patient came under observation. At first it appeared to be aggravated by the attacks. It was not, however, always present at or following the attacks. The amount has recently increased greatly. There has been as large a quantity as one-third volume. Casts, mainly of the granular variety, have been almost constant. Generally, there has been an increase following the acute dyspnea and erythremia. The attacks do not appear to have much effect on the blood pressure. Under rest and medication (?) the pressure has fallen from an average above 150 mm. Hg systolic and 100 mm. Hg diastolic at entry, to average systolic of 108 mm. Hg and diastolic between 75 mm. Hg and 80 mm. Hg with the Erlanger apparatus. In one of the very severe dyspneic periods, the systolic pressure was 100 mm. Hg and the diastolic 60 mm. Hg. At this time the heart action was very weak.

6. Paroxysmal headaches: These usually bore some relations to the dyspnea and the added cyanosis. They frequently manifested themselves for some days previous to the actual attack, and often persisted for several days after the patient was otherwise comfortable. They were generally accompanied by visual disturbances.

7. Gastrointestinal disturbances: These were of more recent onset. Loss of appetite was early noted. There has never been dysphagia or vomiting. Test meals have not been deemed advisable. Paroxysmal pains beginning in the epigastrium and radiating to the lower abdomen were noted about ten months ago. The pain was extremely prostrating, and came on at one of the most severe attacks of dyspnea. The abdominal wall was rigid and the patient was bent double at each sharp stabbing pain. The bowels were constipated. Recently, there have been attacks of diarrhea. This was pronounced for about two weeks on one occasion and was associated with moderately high blood count. There was no elevation of temperature, and nothing characteristic about the stools.

Growth of the tumor: The more recent radiograms appear to show that the mass is gradually extending and that, in keeping with the added physical signs, is involving the greater part of both mediastinal spaces.

Summary.—The case presents many of the findings of the condition of chronic cyanosis with erythremia described by Vaquez, Osler, Cabot and others. The spleen is not, however,



enlarged and there appears to be a discoverable cause for many of the symptoms noted, namely, the mediastinal growth. This is unusual or not yet reported at all in cases of true cyanotic polycythemia (Vaquez-Osler's malady). It is not quite determined that the two conditions do not exist, but in view of the rather marked variations in the cyanosis and the red cell count, it is probable that much of the erythremia is due to extensive pressure in the thorax on the great vessels. The changes in spleen and bone marrow may come on later and the patient take on more characteristically the classic picture of the erythremia vera.

CASE 2.—*Patient.*—A German, boilermaker by trade, aged 43, entered the clinic on account of sense of constriction across the chest, with occasional choking sensation in the throat; insomnia; constant morning nausea without vomiting; shortness of breath with gasping inspirations, weakness, dizziness and headaches.

History.—This negative except for chronic alcoholism and the use of much tobacco. About a year ago he began to note that after eating he had a heavy sensation in the upper epigastrium and that his head felt full. He was unable to sleep at nights on account of a sense of pressure beneath the sternum. He was constantly nauseated in the mornings, but never

vomited, although he tried hard enough. He began to get "winded" with little exertion and people noted that his face was becoming abnormally red. His voice became rather husky, and his breathing was often difficult with "a whooping when he drew in his breath." He became so uncomfortable that he had to give up work. His feet were sometimes swollen; he had headaches and often noticed spots floating before his eyes.

Examination.—This revealed a thick-set, florid-faced man with anxious expression. The respiration rate was 30, and the patient was unable to lie comfortably even when propped up by three pillows. Occasionally there was prolonged, crowing inspiration. There was frequently a short superficial cough without sputum. The skin of the forehead, face, ears, neck and upper part of the thorax, back and front, as well as the feet and hands was rosy red, with purple cast. The cyanosis was slightly increased in the dependent portions and on exertion. There was no peripheral edema. The eyes were prominent and the conjunctiva slightly injected. The tongue was bright red. The supraclavicular fossæ were full and retracted moderately during inspiration. There was no tracheal tug and no enlargement of the cervical glands. The chest was of the pronounced "barrel" type. It moved *en cuirasse* with slight lateral expansion. Litten's shadow was not seen on either side. There was retraction in the lower axillary interspaces during inspiration, especially at the time of the crowing inspirations. In the region of the nipple, the right thorax was rather fuller than the left. Tactile fremitus was increased below both clavicles. The percussion outlines were as in Figure 2. It will be seen that there was distinct atypical thoracic dulness in the mediastinal region. Apart from the dulness, the percussion revealed nothing beyond rather high degree of resonance over the lung. Traube's space was tympanitic. The breath sounds were increased on both sides, especially on the left as far down as the fourth rib. The voice sounds were increased in the left upper and in the back, below the tip of the scapula. The heart was not displaced, but appeared enlarged to the left. The sounds at the apex were rather short and sharp. There was moderate accentuation of the pulmonic second sound. The radial pulse was small, rather quick, regular. The right radial seemed somewhat fuller than the left. The blood pressure read with Erlanger, 12 cm. cuff: systolic, 188 mm. Hg; diastolic, 140 mm. Hg. The abdomen was distended, full in the flanks. The liver descended just below the edge of the ribs in the nipple line at the end of deep inspiration. There was no ascites. The superficial glands were negative.

Otolaryngological examination: Both cords abducted to the cadaveric position and were slightly retracted. They showed moderate injection. On phonation, the right cord was negative; the left showed imperfect approximation to the vocal process posteriorly (Dr. M. L. Cushman).

Eyes: The retina was markedly edematous. The perivascular lymph sheaths of all the veins were prominent; there was disseminated chorioiditis in and about the macular region. Vision O. D. 15/30; O. S. 15/200. (Dr. G. Slocum.)

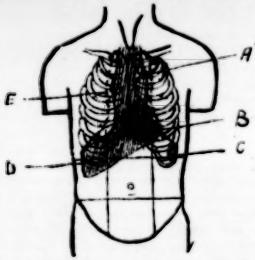


Fig. 1.—A, atypical thoracic dulness; B, cardiac dulness; C, spleen; D, liver; E, area of diminished resonance.

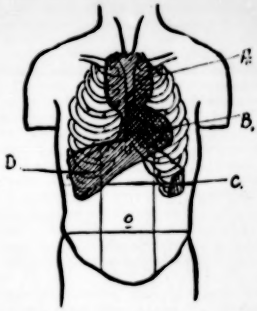


Fig. 3.—A, atypical thoracic dulness; B, cardiac dulness; C, spleen; D, liver.

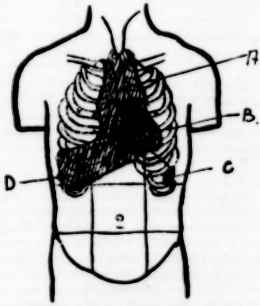


Fig. 2.—A, atypical thoracic dulness; B, cardiac dulness; C, spleen; D, liver.

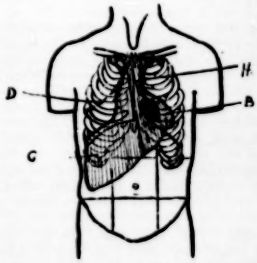


Fig. 4.—A, atypical thoracic dulness; B, cardiac dulness; C, liver; D, upper limit of pleuritic effusion.

Reflexes: These were negative; there was marked tenderness along the posterior tibial nerve.

Blood: The red-cell count was 4,750,000; the white-cell count, 5,200; the hemoglobin, 100 per cent. (Tallquist).

Urine: This was negative.

Stomach: There was mucous gastritis with diminished acidity, but good motility.

Fluoroscope: The heart appeared hypertrophied. Occupying the mediastinum was a mass of about the same degree of opacity as the heart. It was continuous with the heart outline, and extended upward to the neck. In its upper part, it extended more to the left than to the right. Low down it filled in the cardiohepatic angle.

Radiogram: This confirmed the fluoroscopic findings. The

mass was especially thick about the great vessels and the root of the lung. There were no evidences of pulsation.

Subsequent History.—The patient was put on purges and potassium iodid. He has shown improvement in blood pressure, which has dropped as low as 160 systolic, and in his subjective symptoms. The crowing breathing, the nocturnal dyspnea, and the morning nausea have become less marked. He is still cyanotic and complains of the sensation of tightness in his chest. It is aggravated by excitement or hard work. The tumor appears to be enlarging into the posterior mediastinum and to the left. A distinct area of dulness may be percussed in the left back along the spine from the level of the inner end of the scapular spine to the eighth dorsal vertebra. In this region there is marked increase in the vocal resonance and suggestion of tubular breathing. The crowing inspiration is still marked, but not so evident as when the case first came under observation. There is no dysphagia, and no obstruction or pain when the stomach tube is passed. The patient says that he has coughed up or vomited up some "stuff" streaked with blood, but we have never been able to get any of it for examination in the clinic.

CASE 3.—*Patient.*—A woman, aged 64, likewise showed chronic cyanosis as a pronounced clinical manifestation. At first, there was some polycythemia, the red-cell count reaching 6,640,000, but this was transitory.

History.—The patient had had a carcinoma of the left breast removed three years before entering the hospital. She came to us on account of pain in the left side of the chest, swelling of the neck, with "rushing of blood" to the head, weakness, nervousness and edema of the extremities. She presented a negative family and personal history with the exception of a peculiar, eczematous skin affection in early adult life. The breast tumor was noted fifteen years ago. She had it removed by a popular "cancer-plaster cure." It recurred with increased rapidity of growth, and three years since she had a radical operation on the breast and the left cervical glands. Shortly after the operation, the patient noted burning sensations in the wrists and the hands. Six months ago, she observed that the veins of the upper part of her chest and her left arm were growing more prominent; there were also soreness and a sensation of fulness in the upper part of the thorax in the median line. The head began to feel full and the neck to enlarge. She thought that it was now two inches larger than it had been six months ago. The left arm began to swell slightly. She had lost twelve pounds in weight in two years.

Examination.—The patient was a rather heavy-set woman, nervously inclined. She was very restless and loquacious. Her face and neck were scarlet, with a bluish tinge over the ears and the lips. Over the upper thorax and the left arm the superficial veins were prominent and enlarged. The superficial venules were dilated so that the entire region has a distinctly bluish cast. Both forearms were puffy-looking, especially the left, where there was slight pitting on pressure. The left forearm was also cyanotic, especially when dependent. The glands in the left axilla and the lower cervical group on both sides, particularly on the left, were enlarged. The eyes were moist, the lids swollen, the palpebral aperture small. The pupils were negative. The voice was rather hoarse. There was no tracheal tug.

Thorax: This was short and broad. The bony prominences were hidden by fat. There was no Litten's shadow on the right; it was fairly well seen on the left. There was slight increase in tactile fremitus below the right clavicle. The left infraclavicular space filled better than did the right. The percussion (Fig. 3.) revealed an easily made-out mass occupying the upper sternal region, and extending rather more to the right than the left. The remainder of the thorax was negative to percussion. On auscultation the breathing was diminished on the left to the second rib and increased over a corresponding area to the right. Below it became quiet on both sides. Over both infraclavicular spaces the spoken voice had a distinctly nasal twang, which was more marked on the right.

Heart: This was negative, except weakness and the rather startling increase in the pulmonic second sound, without diastolic shock. The radial pulse was moderately full on both sides, the systolic pressure being 130 mm. Hg. (Erlanger, 12 cm. cuff.) There was no capillary pulsation.

Abdomen: The liver and the spleen were barely felt. The inguinal glands were negative. A mass or indefinite shape was made out in the lower left iliac region (secondary?).

Fluoroscope: A mass of rather globular shape filled the superior and anterior mediastinal regions. It could not be said to pulsate.

Radiogram: This confirmed the fluoroscopic findings. The mass was distinctly more to the right than the left. It was in close connection with the great vessels and the root of the lung. The heart appeared somewhat enlarged.

Subsequent History.—On account of the heart weakness, the patient was put on digitalis. She became rather more comfortable, but her subjective and objective symptoms and signs did not improve. She was at length lost sight of, but recently word reached us of her death. The autopsy was not secured.

CASE 4.—This presented evidences of primary, malignant mediastinal tumor, in contrast to the secondary malignant tumor of Case 3. The disease appeared to run a rapid course, as the death of the patient has already been reported.

Patient.—He was brought to the hospital for "heart trouble." The man had been ill for about a year. The disturbance followed a severe attack of diarrhea, from which he never appeared to recover. His main complaints were loss of weight and strength, hacking cough with abundant frothy or watery sputum, shortness of breath and palpitation.

Examination.—The patient was tall, spare, emaciated. There was a trace of cyanosis over his lips and his finger tips. The face was dusky pale, with enlarged venules over the cheeks and the nose. There was an old conjunctivitis with eversion of the lower lid. The thorax was long and deep. The lower interspaces retracted on the left in the sixth and seventh axillary spaces, and slightly in the sixth on the right. The heart impulse was diffusely seen below the left nipple. There was poor thoracic movement on the right side, generally fuller than the left. The vocal fremitus was absent on the right below the third rib. The percussion is indicated in Figure 4. There was abnormal substernal dulness extending upward below both clavicles more on the right than the left. The heart was displaced or enlarged to the left. Absolute dulness began at the third space on the right and was movable. There was moderate Grocco's sign in the left back. Auscultation revealed quiet breathing on the right below the clavicle, and absent breathing below the third space. There was rather marked nasal bronchophony, without egophony. On the left both breath and voice sounds were exaggerated. The heart sounds were weak and impure.

Fluoroscope: After tapping, the heart was to the left. On the right there was diffuse opacity low down. The left diaphragm moved freely. There was no movement on the right.

Blood examination: Red blood cells 5,680,000; white cells, 7,550; hemoglobin, 85 per cent. (Tallquist). The blood pressure at time of entering was, systolic, 210; diastolic, 160 mm. Hg. The radials were very sclerotic.

The urine was negative.

The patient was tapped in the right pleural sac and 1500 c.c. fluid removed. The fluid contained numerous large, atypically built alveolar cells, with several nuclei and division figures, rendering a diagnosis of carcinoma highly probable.

Subsequent History.—The patient grew gradually worse. The fluid accumulated rapidly. He was again tapped and again the fluid returned. His cardiac weakness and his cough returned with increasing vigor after the tappings, and he barely reached his home before he died.

SUMMARY.

Diagnosis.—It will be seen that the four cases detailed present a varied range of symptomatology. There were certain constant features. In each of the cases there was more or less marked cyanosis, dyspnea and cough. The physical examination, carefully made, with the patients stripped, revealed in each instance atypical, thoracic dulness. In Case 1 the heart was displaced by the growth; in Case 4 the cardiac displacement was due largely to the accumulation of fluid in the right pleural

sac. In all the cases mediastinal infiltration was clearly shown by both fluoroscope and radiogram. In Case 4 the opacity was masked by the effusion, but became evident after tapping. The pressure signs are exceptionally interesting. In the first three cases cited the cyanosis and flushing were marked. Frequently there were in all cases paroxysmal exacerbations, brought on usually by exertion or psychic disturbances. In Case 1 these paroxysmal manifestations were striking. Distention of the veins of the neck and the arms was evident in Cases 1 and 3, especially in the latter. In Case 3 the distention of the veins was largely in the left arm and was associated with almost constant edema. There was also at times a brawny desquamation of the skin of the left arm and chest. In the first three cases there was more or less constant involvement of the vocal cords. In Case 1 this resulted occasionally in aphonia. In Case 2 permanent, partial paralysis of the left cord was noted. In all the cases there was pressure, more or less constant, on the pneumogastric, with tachycardia, precordial distress or abdominal pain as a consequence. Pressure on the bronchi was especially evident in Cases 1 and 2. The variation in the degree of pressure should be noted. In all the cases except that last described the evidences of constant, long-continued pressure were to be seen in the eye-grounds. This was particularly so in Cases 1 and 2. In these patients the eyes were also prominent, but not equally so. The right eyeball protruded rather noticeably in Case 1. The evidences of stagnation in the veins of the fundus was generally proportionate to the prominence of the eyes. In but one of the patients (Case 1) was peripheral edema at all constant. In all of the cases it was small in amount. Case 1 showed an increasing amount as the albumin in his urine increased. The subjective evidences of intrathoracic pressure are interesting and important. Sensations of "smothering," "fulness beneath the breast bone" and a "weight in the chest" were complained of. The cerebral congestion was associated with feelings of fulness in the head (frequently mistaken for fever by the patient), headaches, dizziness and disturbances in vision. Cough was present in all the cases. There was a suggestion of "brassiness" in Case 2, in which patient laryngoscopic examination revealed partial paralysis of the vocal cords. Tracheal tug was not observed in any case. No evidence of pulsation could be made out in the tumor area in any of the four patients. With the exception of myocardial weakness (Cases 3 and 4) the hearts were negative, so far as could be determined. Diastolic shock was not to be made out in any instance.

Without postmortem material the nature of the tumor masses in these cases can only be surmised. There is abundant proof that in Cases 3 and 4 the growths were carcinomatous. In Case 1 the process seems to be either a slowly growing sarcoma or a luetic involvement of the mediastinal tissues. No evidences of syphilis are discoverable, however. Case 2 is perhaps more clearly luetic than Case 1. There is no distinct history of syphilis, but the patient has reacted fairly well to specific medication.

A few words might be said as to the probable position of the growths. In Case 1 the symptomatology and the radiograms point to a rather general involvement of the entire mediastinum. The second case presents more evidences of involvement of the middle space of the inferior mediastinum than of a general involvement. In Case 3 the anterior and superior spaces were doubtless the seats of the greater degree of infiltration. In the last case the inferior space appeared to be the seat of the larger portion of the growth, with secondary involvement of the right pleura. The so-called "cancer cells" in the pleuritic effusion were a valuable diagnostic aid as to the primary cause of the fluid.

Treatment.—When the nature of the growth is evidently malignant, as in Cases 3 and 4, only palliative measures are indicated. These are governed by the symptoms. Care should be exercised in the tappings, when effusion exists. Too rapid evacuation of fluid, or the withdrawal of too much of it, may be followed by severe and exhausting cough, albuminous expectoration and collapse. Small, localized tumor masses may in picked cases be treated with *x*-rays with benefit. None of our patients appeared to improve under the exposures. The treatment should be given only by skilled operators, inasmuch as the long-continued exposures, which are evidently necessary, may give rise to severe burns and serious blood and kidney alterations. In our series Patients 1 and 2 appeared to improve somewhat under anti-syphilitic medication. If there is even a possibility of lues iodids may be tried in full doses. The high blood pressures are relieved by bleeding or, where this is impossible, by nitroglycerin or the nitrites. Daily purging is also of service, although this should be done with care, as frequently patients become exhausted from the free evacuations. The periods of extreme dyspnea (as in Case 1) are relieved by morphin and atropin hypodermically and the administration of oxygen. In a few instances it seemed that the oxygen exerted a favorable effect on the erythremia. When the dyspnea is continued through several days, absolute rest, with tincture of belladonna internally, make the patient more comfortable.

Operative interference might be advised in cases in which the tumor mass is well localized, in which proper arrangements can be made for maintaining intrathoracic pressure and where an operator of the highest skill is at hand. Doubtless, with the improvement in diagnostic methods and more extended operative procedures on the thorax, surgical measures will become more general. The situation of the mediastinal tissues will, however, place certain barriers in the way of promiscuous attempts at enucleation or dissection of mediastinal neoplasmata.

In conclusion I wish to express my thanks to Drs. M. L. Cushman, George Slocum and Sobei Ide for aid in collecting data herewith presented, and to Dr. B. D. Niles of Grand Ledge, Mich., and Dr. G. A. Seaboldt of Jackson, Mich., for permission to examine two of the cases.

DISCUSSION.

DR. THOMAS D. COLEMAN, Augusta, Ga.: I have been impressed with the fact that the disease in question is very rare among negroes. These people are subjects of syphilis, tuberculosis and adventitious growths in general; but I have never seen a case of mediastinal tumor occurring in a full-blooded negro. I have seen two cases in mulattos. The other cases that I have seen occurred in whites and all the patients were males, aged somewhere between 30 and 60. One was a distinct case of carcinoma. The patient had had the pectoral muscles removed and finally succumbed to the disease, and the autopsy confirmed the diagnosis, cancer of the mediastinum. The chief point of interest in my cases, outside of the pressure and other symptoms, is that but one of my patients died. I had one case, the diagnosis of which was not verified, in which there was a distinct paralysis of the left vocal cord, which was supposed to be due to a gumma. The patient was placed on specific treatment with the result that

recovery followed. The diagnosis in this case was fairly well established but could not be confirmed by the *x*-ray, as its use had not been discovered at that time, about eighteen years ago.

DR. ALEXANDER LAMBERT, New York: Some years ago I had a case that puzzled me very much. The lesion turned out to be a sarcoma which grew at the junction of the vena azygos major and the superior vena cava. The pressure symptoms were peculiar. When the patient was lying down he became blue from the clavicle up, the color of the rest of the body remaining normal; but when the patient sat up his face was white and he became blue from the clavicle to the hips. Whether lying down or sitting up the legs remained normal all the time. This tumor acted no doubt as a sort of ball valve. The diagnosis was made by working out the circulation of the chest wall. A primary sarcoma of the right ventricle of the heart was the original lesion. I have seen a number of mediastinal tumors at Bellevue Hospital, and what struck me as most interesting was that the symptoms came on paroxysmally, with a cough sometimes like that of whooping cough and without any apparent reason or cause of excitation. The pain and dyspnea came on paroxysmally. One symptom on which some stress was laid by the old English writers is occlusion of the right innominate vein—pathognomonic of mediastinal tumors. This does not occur in aneurism.

DR. ROBERT H. BABCOCK, Chicago: It was my fortune last summer to see a case of mediastinal tumor, the antemortem diagnosis of which was substantiated post mortem. The patient had been treated for pulmonary tuberculosis. This illustrates the fact that a physician may mistake for pulmonary tuberculosis a disease which produces a definite tumefaction of the front of the chest. It had been suggested to me, even before I saw the patient, that consumption might be present; but when I laid my hands on the front of the chest it was clear to me that this was not a case of pulmonary tuberculosis. Instead of a depression of the chest, a characteristic of the phthisical habitus, the upper portion of the chest was distinctly bulging, showing intrathoracic pressure.

Another interesting phase of the case was that the patient had been given mercury for syphilis for a long time. Certain sores in the mouth were thought to be mucous patches. The antisyphilitic treatment was pushed to the limit, but without benefit to the patient. A careful investigation of the history of this case revealed the fact that these sores were due to the mercury. This case was very instructive to me, because it showed conclusively the necessity of the physician entering carefully into the history of the case, and also the necessity of a clear discrimination between the symptoms of the various intrathoracic diseases, since if a diagnosis of intrathoracic disease is to be made, one should bear in mind the fact that it can not always be made by the physical signs alone.

DR. JOHN FRANCIS HERRICK, Ottumwa, Iowa: The diagnosis in these cases is very important. I have seen a case of aneurism of the posterior wall of the aorta in which the entire cavity of the aneurism was filled with a solid mass of fibrin before the patient was first seen. There was only a small opening through which the blood got to the aorta and left subclavian. The case appeared much like a tumor of the mediastinum, with pressure on the aorta. There was an absence of bruit. No information could be obtained from the history of the case. The diagnosis of a solid tumor was made, but an old aneurism, with its cavity filled with a solid mass of fibrin, was found at the postmortem.

DR. FRANK SMITHIES, Ann Arbor, Mich.: I am not quite certain whether my first case did not present quite as many symptoms of the Vaquez-Osler malady as it did of intrathoracic pressure. It becomes very interesting to consider the possibility of the blood changes being secondary to the long-continued intrathoracic pressure, with consequent hyperplasia of the bone marrow. Dr. Lambert's remarks about the paroxysmal character of the symptoms of mediastinal growths are interesting. With regard to the first case reported, the pupils were equal and active under ordinary conditions. During the paroxysmal attacks of dyspnea the right pupil became distinctly dilated, showing a certain involvement of the sympathetic. Mediastinal tumors probably might be differentiated ante mortem by radiograms.

NON-SURGICAL TREATMENT OF UTERINE DISPLACEMENTS.*

H. J. BOLDT, M.D.
NEW YORK.

Operative gynecologic surgery has made such strides during the past few years that the practice of minor gynecology has been almost lost sight of. This fact becomes evident when one notes the number of surgical contributions to the relief of uterine displacements and the scarcity of contributions that deal with non-surgical treatment. And it is made still more evident when one converses with recent graduates in medicine, who know practically nothing about mechanical methods of correcting displacements, and who speak as if such therapeutic measures had passed into oblivion.

This condition is undoubtedly due to the advance that has been made in gynecologic surgery, which cures the displacements of the uterus much more rapidly and far more certainly; but we should remember that there are some patients who object to being operated on, and others whose physical condition makes operation unsafe (as, for instance, patients with exophthalmic goiter, with diabetes mellitus, etc.), in many of whom properly adjusted mechanical support will entirely relieve the symptoms caused by a displaced uterus. Moreover, we should remember that no operation is entirely free from risk. If we can in a given case achieve the desired symptomatic result by an entirely safe method, then it should be for the patient to decide whether she prefers the palliative measure, with a possibility of permanent cure and without any of the risk entailed by surgical intervention, or the operation with its attendant risk, resulting almost certainly in cure without the necessity of wearing a pessary.

I do not think it can be disputed that in some instances it requires more skill to adjust a pessary properly than it does to do a simple abdominal operation, since the former requires good judgment and more experience than can be gained in the one or two lectures that students get on this subject in colleges.

The normal position of the uterus varies with the condition of the bladder and the rectum; both being empty, the uterus is in anteversion with flexion. It is freely movable and changes its position according to the degree of distention of the bladder and rectum. We thus see that the uterus may become retrodisplaced or retroverted under certain physiologic conditions; but this is not a pathologic displacement, and it does not become such unless the uterus permanently remains in retrodisplacement. Before B. S. Schultze's classical publication on the pathology and therapeutics of uterine displacements, the perfectly physiologic anteflexion of the uterus was considered by most gynecologists to be a pathologic condition, and hence women were unnecessarily subjected to treatment with a pessary, the kinds of which in those days were very numerous.

The displacements which are most frequently amenable to treatment by mechanical supports are of two kinds—posterior displacements, and descensus of the uterus, either with or without more or less descensus of the vagina.

In posterior displacements the rectouterine ligaments have lost their tone and are longer than normal; if a pessary be adjusted properly, they are made so tense that they bring the cervix backward toward the posterior

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty ninth Annual Session, held at Chicago, June, 1908.

pelvic wall, and thus the body of the uterus is placed in anteposition; provided no pathologic process has caused a thinning out (an atrophy) at the juncture of the cervix with the body of the uterus, as in some instances of extreme retroflexion of long standing. The round ligaments, which are elongated in such cases, are relieved of the weight and get an opportunity to regain their normal condition. Thus, I believe, these patients are sometimes entirely cured of the displacement.

The posterior displacements may be divided into (1) retroposition, (2) retroversion, and (3) retroflexion, in each of which varying degrees of displacement exist. Retroversion usually coexists with retroflexion. It is also commonly found that a retroversioflexion is associated with more or less descensus of the uterus.

Retropositions of the uterus are not likely to cause any symptoms. In these the anteflexed form of the body of the uterus is retained. The organ as a whole is simply situated farther back toward the sacrum than usual.

With retroversions there is associated more or less induration of the uterine walls, which is most marked at the junction of the body with the cervix. When the induration passes off, the body of the uterus will by its gravity become flexed to a greater or less degree, thus changing into a retroversion with flexion. In some cases of retroflexion, the flexion angle becomes very acute, so that the uterine body may be below the level of the external os. Again, in some instances of long-standing retroflexion, the junction between the body and the cervix may become so atrophied that no pessary can hold the uterus anteposed, the body invariably tipping over the upper bar of the supporter.

The majority of retroversions and retroflexions are acquired; in these cases treatment is more productive of good results than in those of congenital origin. Furthermore, it is the cases of acquired displacement that give rise to symptoms. Congenital cases do not often cause symptoms, and when they do, the displacement is seldom found amenable to treatment with pessaries. In a patient with a congenital retroflexion, the uterus is somewhat smaller than normal, and is not fully developed. Frequently the vagina is too short and too small in caliber to admit the adjustment of a pessary; and on the anterior vaginal wall, in the median line, is found a very fine band-like condition, associated with extreme tensity and density of the exterior cervical connective tissue, so that even should we succeed in anteposing such a uterus, the anteposition will be only temporary, and the uterus will soon again assume its pathologic position. This condition may be considered as one of the causes of sterility.

Retrodisplacements which are fixed by inflammatory adhesions are not suitable for treatment by pessaries, nor is such treatment indicated in any case complicated by an acute inflammation of any part of the pelvic structures or of the pelvic contents. In all such cases the inflammation must first be cured.

A pessary should never under any circumstances be adjusted before the uterus has been placed into physiologic anteflexion. If this can not be done, the treatment is not suitable to the condition. The replacement should be effected by bimannal manipulation. Only in exceptional instances, and then with the utmost antiseptic precautions, may a sound be used as an aid—as in treating very corpulent women and those with very rigid abdominal parietes, but then only if we have ascertained that no inflammatory process is present in the uterine annexa or the pelvic peritoneum. The object of a pessary is to hold the displaced uterus in position after the displacement has been corrected, by making tense the folds of Douglas and thus bringing the cervix backward toward the posterior pelvic wall. The tension on the round ligaments is then relieved, and they have an opportunity to regain their normal tone and to exercise again their functions as the anterior supporting ligaments of the uterus.

Some instances of retroversion with flexion are relieved by the adjustment of a pessary, even if the pessary does not hold the uterus in anteposition, but simply brings it on a higher plane in the pelvis. It has seemed to me that this relief is brought about by correcting faulty circulation in the pelvic organs, which again was caused by the backward displacement with more or less descensus of the uterus.

In instances of pregnancy with retroflexed uterus, I usually make use of the knee-chest position for the purpose of reducing the displaced organ, unless I readily succeed in replacing it in Sims' position. One gets much aid in the air-pressure in the knee-chest position, and is more easily enabled to sweep the gravid uterus past the sacroiliac synchondrosis. When the organ has been reduced, a proper sized pessary should at once be adjusted.

If the physician is specially trained in the method devised by the late Thure Brandt, and has the time and the patience, and if the patient is willing to undergo such a course of treatment, very much may be accomplished with it. It is particularly to be recommended when the uterus is fixed by adhesions, more especially old puerperal adhesions. It should be avoided in all cases of salpingitis, especially of gonorrheal origin. Although I have studied the method and have used it extensively, I consider it too time-consuming for a busy physician to practice it. Furthermore, in simple displacements the results of this method are no more satisfactory, in some cases than other therapeutic measures at our command. I have seen the late Thure Brandt and his former pupil, Oscar Nissen, accomplish astonishing results in instances of fixed retroflexions, if the fixation was the result of puerperal inflammatory conditions and if the uterus was held in faulty position by old cicatrices; but I confess that, while I was able to achieve similar results, thanks to the instruction that was given me by these gentlemen twenty years ago, I found that the method required too much time.

The retroflexions most amenable to permanent cure by pessaries are those of recent postpuerperal origin. Hence the importance of an accoucheur's regularly examining his patients about a month after confinement. Such a displacement can be most easily reduced (provided there are no adhesions) by pushing up the fundus in the posterior cul-de-sac with the index and middle finger, while with the thumb the cervix is sharply depressed at the vaginal junction toward the hollow of the sacrum, and the fingers of the external hand are being brought with a firm rotatory motion behind the fundus, which is being pushed toward the anterior parietes with the vaginal fingers. When the fingers of the external hand are behind the fundus, this can readily be anteposed. By making pressure with the thigh against the elbow of the intravaginal fingers, the foot having been placed on a stool, the replacement is accomplished with less exertion. If the vagina is too narrow to admit the two fingers and thumb, the forefinger should depress the cervix, while the middle finger pushes the fundus upward in the retrouterine space.

Another method which may sometimes be used with

advantage is that devised by Kuestner. In this method either the anterior or posterior lip of the vaginal portion of the cervix is grasped with a pair of tenaculum forceps, and is pulled in the axis of the vagina toward the vaginal outlet, which action stretches the cervix and brings the fundus nearer to the external hand so that it can be grasped by it and anteposed.

As soon as the displaced uterus has been properly reduced, a pessary should be adjusted. Care must be exercised in the selection of the pessary, that it be not too small or too large, and that it does not cause pressure on the soft parts. The patient should not be aware that a foreign body is in the genital tract, but the pessary must be of such size and shape as to hold the uterus in place. The pessaries best adapted to this are the Albert Smith and Thomas' pessaries. If the pessary has not the proper shape for the individual case, this can readily be given to it by proper molding, which is done by anointing the pessary with vaseline and moving it rapidly to and fro over the flame of an alcohol lamp until the rubber is heated so that it may be molded to the desired shape, when it is immediately set in shape by immersion in cold water.

After the adjustment, the patient should be allowed to walk about for a while and then be re-examined to determine if the pessary retains the uterus in position. The examination should be repeated a day or two later, to ascertain whether the uterus is held in position and the pessary is of the proper size and shape. A physician who is experienced will generally be able to make the proper selection of the pessary on the first attempt. While wearing a pessary the patient should use a vaginal douche daily, either of plain water or of a saline solution, even during menstruation. A pessary that has been properly fitted need not be looked after more than once in five or six months. It is advisable, when the patient asks how long the supporter must be worn, to tell her at least from two to five years; this being about the time that is necessary for a permanent cure of a displacement by a pessary, when such cure is possible. It will be found that from 20 to 25 per cent. of uncomplicated mobile backward displacements of the uterus can be permanently cured by such therapeutic measures.

I have so far considered only mobile backward displacements. There are some instances of backward displacements with light adhesions that are also amenable to treatment without the use of the knife. Allusion has been made to the Thure Brandt massage method, but because of the patience required to obtain good results with it, it was not further considered. Schultze devised a more rapid method of breaking up such light adhesions in one sitting under anesthesia. If no marked tubal complication is present, it may be tried, and occasionally I have been successful with it. The method employed is somewhat similar to that already described for replacing the mobile uterus bimanually, with this difference, that the middle finger is introduced per rectum, the fore finger and thumb per vaginam, and the adhesions are then forcibly broken up. If this method is successful, and the uterus has been anteposed, a pessary should be adjusted immediately, with an observance of the rules mentioned for mobile displacements. But, to repeat, serious tubal complications must be excluded before attempting this method.

Pessary treatment for the relief of acquired pathologic anteversions and anteflexions is practically useless, except for the relief of the vesical tenesmus, which sometimes accompanies these conditions. Of all forms of pessary which have been designed for anterior displacements, there is only one which in my opinion meets the requirements, that devised by Dr. Eugene Gehrung and known as the "Gehrung pessary." This pessary may also be used advantageously in mild degrees of descensus of the uterus and of the vagina. While I have never seen any case actually cured by it, most patients can be relieved more or less of the bearing down feeling of which they so frequently complain. The lower bar of this horseshoe-shaped pessary rests near the posterior border of the symphysis and elevates the protruding anterior vaginal wall and to some extent also the uterus. In Gehrung's hands it has proved satisfactory, even in marked degrees of prolapsus of the uterus and vagina. I have used it only as a palliative measure until the patient would consent to an operation, because I have not been successful in giving such patients permanent relief.

Congenital anteflexions, in which the cervix is nearly always retroverted, are dependent to a great extent on a marked shortening of the recto-uterine ligaments. Frequently a posterior perimetritis is associated with these cases. Pessary treatment is useless for such patients, so far as my observation goes.

My object in selecting this subject for discussion was to emphasize the fact that there are other therapeutic measures in gynecology than the use of the knife and scissors; and to recall from apparent abandonment a measure that in some cases secures important beneficial results.

39 East Sixty-first Street.

DISCUSSION.

DR. C. LESTER HALL, Kansas City, Mo.: The pessary has its place in cases of uterine displacement. I have used it for many years with a fair degree of success, but I find that in a great many cases it is harmful. I do not agree with Dr. Boldt, that it should be used in cases of suspected adhesions and of pathologic conditions in the adnexa. I believe that the method of tearing up adhesions is a dangerous one. But in a case in which there are no adhesions, and the woman desires to become a mother, I believe that the pessary can be used with marked advantage and possibly with permanent cure. In reference to putting the uterus in position before the insertion of the pessary, I do not believe that in many cases of fleshy abdomen it is possible for any man to tell positively whether the uterus is in proper position without the use of the intrauterine sound. By placing the patient in the knee-chest position, using the sound as a fulcrum, and with the Sims speculum retracting the perineum, I believe that it is possible to tell when one does or does not get the uterus in proper position. I do not believe that an ordinary sound should be used, but an instrument much like the Miller dilator or the male urethral sound properly shaped. Many of these cases of young women are too early consigned to operative procedure. I have under my care a young married woman who had in her girlhood a retrodisplacement of the uterus and who continues to have it after each confinement unless I treat her by the postural method and as involution takes place see that the uterus is in proper position. I believe that the best cure for retrodisplacement outside of surgical procedure is pregnancy.

DR. GEORGE GELLHORN, St. Louis: It is difficult to realize that gynecology at the present day consists of anything else but surgery. There are two points in Dr. Boldt's paper which should be emphasized because of their extreme importance. The first is that there are some men, both here and abroad, who assert that movable retroflexions do not cause any symptoms and consequently need no treatment. I am aware that such symptomless cases do exist, but they are comparatively rare and usually congenital. The overwhelming majority of acquired retroflexions, however, produce symptoms, sometimes only in remote parts of the body, and I am more than ever

convinced that these cases require treatment. Movable retroflexion very often acts as an *agent provocateur* of neurasthenia; if you only correct the uterine displacement and dismiss the patient without further attention, her neurasthenia which may have become independent will not receive permanent relief. It is necessary to treat also the neurasthenic symptoms of your patient, but you can not cure her neurasthenia unless you first relieve the exciting cause, viz: the retroflexion. As to the second point I heartily agree with Dr. Boldt that the proper treatment for uncomplicated movable retroflexion is the pessary. There appear in literature every now and then severe criticisms of the efficacy of the pessary, but to my mind such statements are acknowledgments of one's unfamiliarity with the possibilities of the pessary and the correct mode of its adjustment. With growing experience the number of irreducible uteri is markedly diminished. Should other means of replacing fail, the pressure weight method of Funke and Halban should be tried. The patient being in the Trendelenburg position, an empty rubber bag is placed in the vagina behind the cervix and then filled up with metallic mercury. If the uterus be movable at all, it will almost invariably glide past the promontory into its proper place and can now be held in position by means of a pessary. The intrauterine sound, on the other hand, which was advocated by the last speaker, carries with it the danger of perforation.

DR. ALBERT GOLDSPOHN, Chicago: The great evils which did occur in conjunction with pessaries, and therefore led the profession to exclude them from use, were not due to the pessary, but to the ignorant use, the abuse of the pessary in introducing it as if it were a lever or a jackscrew to raise something. Dr. Boldt properly called attention to the fact that the pessary must not be used unless the uterus is in normal position, and that that normal position must be secured by bimanual palpation, not by intrauterine instrumentation. This implies that the man who is able to restore a uterus by bimanual palpation will probably also recognize complications that would contraindicate its use. But I should like to call attention to one error that I think Dr. Boldt makes in declaring that if the uterus is held in normal position, in two to five years the round ligaments will in 20 per cent. of patients recover their normal shortness and then continue to hold that uterus. That is entirely the contrary of my own observation, and I have for at least fifteen or twenty years never had less than thirty patients with pessaries to look after. I can cite case on case of women who, on account of their aversion to surgery and because they had nothing but simple displacements, were treated by me with pessaries. The round ligaments of the uterus stretch and we might think that by the relief of tension they would retract, but that conclusion is not warranted. There is a period of grace, however, for the round ligaments, and that is shortly after labor when the element of involution is yet on the uterus and its appendages. If three or four weeks after labor the physician will examine his patient, and, finding a retroversion, will bring the uterus into anteversion by having the patient assume the knee-chest posture and by intelligent bimanual manipulation, and will then fit a pessary to hold that heavy uterus there assisted by the knee-chest posture assumed two or three times in the twenty-four hours, he will meet with success. He will find it difficult at first and will have to examine and make readjustments frequently until the uterus becomes lighter; but if it be kept in anteversion successfully all the time, by such care on the part of both the doctor and the patient for about a year and the pessary be then removed, the displacement will be cured in the majority of the cases.

DR. BERTHA VAN HOOSEN, Chicago: I have treated cases of downward displacement of the uterus successfully by the employment of a series of glass globe pessaries. This method is not especially useful in cases in which there is almost no muscular tissue in the perineum. The only time when the patient will have any difficulty is when she goes to stool. Any pessary that will remain in while the patient is standing or walking will be large enough. After the pessary is worn for a couple of months there will be difficulty in removing it, and the fingers will have to be placed in the rectum, probably causing an abrasion of the vaginal mucosa. When this pessary is removed a smaller size should be inserted to be worn for two or three months. After wearing this there will again be difficulty in its removal, and a still smaller size is then inserted. In two to eight years you will be able to let that patient go without any pessary at all. By this method you are simply taking advantage of the natural atrophy that is going on. Any patient who is over 50 who has some muscular tissue in the perineum and has patience can be treated in this way very successfully. Sometimes there is atrophy in the cul-de-sac of Douglas which will make it almost impossible to retain the glass pessary, and it is contraindicated here. I have applied the glass globe in cases in which the vagina had a large ulcerated surface and when the pessary was removed the surfaces had completely healed and the pessary had caused no irritation.

DR. A. ERNEST GALLANT, New York: In some cases I have been surprised, when the patient returned, to find that the pessary had turned "end for end." A careful study of the pessary and these cases convinced me that the usual plan of introduction was wrong. The smaller end of the pessary is like a wedge, and it is so rounded that when that end is placed downward it slips from under the symphysis and out through the vulva whenever any pressure from above forces it down. On the other hand, with the small end uppermost, the cervix rests in perfect adjustment and does not wobble, the broad end under the symphysis lifts the floor of the bladder, and no amount of force can dislodge it, unless the perineum is torn or the pessary is not of a proper size. I have introduced the pessary in this way many thousands of times and it certainly fits better and holds the uterus in good position.

DR. FRANK HINCHEY, St. Louis: I think that Dr. Goldspohn is right in taking issue with Dr. Boldt in regard to the function of the round ligaments, but he gives no explanation of this theory. I think that we are wrong in placing any reliance on the round ligaments for acting as a support to the uterus in any way, either in holding it forward or having any effect on it when it is backward. I believe that the round ligaments are relics of the quadrupedal stage, when their purpose was to prevent the heavy, pregnant uterus from pitching forward when the animal was leaping. In the human being, however, there is no use for them. This is well shown by the fact that all operations for replacement of the uterus by shortening of the round ligaments are useless unless the pelvic floor is perfectly repaired.

DR. W. O. HENRY, Omaha: I believe that the general practitioner will find it better to put the patient in the knee-chest position, get the uterus back in its place and then insert the pessary. It can be done much better in this way than by lifting the uterus up, with the patient in the dorsal position. I do not believe it wise to use injections of any kind during menstruation. I believe that Schultz's method of treating a misplaced uterus bound down by adhesions is always wrong, and I object to that procedure entirely. I think that we are working in the dark and should never subject a patient to the tearing up of these adhesions under an anesthetic unless the work is done under the eye.

DR. H. J. BOLDT, New York: I have never seen cases of forward displacement with descent of the uterus cured by mechanical support. The percentage of patients cured in the cases I have mentioned was taken at random. I know that a certain proportion are cured and I take it that from 20 to 25 per cent. of those patients wear a support from two to five years. No one should think of introducing a pessary as Dr. Hall suggests, with the uterus fixed by adhesions. In regard to Dr. Henry's remarks I have seen good results in a few instances, but personally I am not in favor of the method.

Study of Pediatrics.—Caille, in the *Archives of Pediatrics*, states that the broadening influence of pediatric study has not been sufficiently emphasized and is probably underrated, but must be conceded as we realize how thoroughly the practice in diseases of children brings us into close touch with almost every other special line of medical work, including general surgery, the eye, ear, nose and throat specialties, orthopedics, skin diseases, etc.

NITROUS OXID AND OGYGEN IN DENTAL AND MAJOR SURGERY.*

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Since the discovery of chloroform and ether post-operative pneumonia, renal complications and other deleterious results, as well as the danger of death from their use, have baffled the medical fraternity, and the only apparent escape from this condition seems to be through the widespread use of nitrous oxid and oxygen.

The dentist has been so prominent in the discovery of anesthesia and has made his work so well known that this paper shall deal mostly with the surgical field. It is well to state, however, that the nasal administration of nitrous oxid combined with pure oxygen is surpassing all previous results in dental anesthesia.

Recent clinical experiments prove, beyond doubt, that this anesthetic is of great value to the surgeon and a boon to suffering humanity. The premonitory signs of danger produced by nitrous oxid and oxygen are so marked that the patient is much safer in the hands of an inexperienced operator than if chloroform or ether is used, to the extent that the respiration and not the heart is mainly involved, the latter continuing in its normal rhythm some minutes after muscles of respiration are completely paralyzed.

Contraindications for the use of this anesthetic are atheromatous and arteriosclerotic conditions, although I firmly believe that by double diligence with pure oxygen even patients with these conditions may be safely anesthetized. Experiments are under way at the present time by one of our leading surgeons for the purpose of testing the blood pressure with this anesthetic and the safety of its use. Inasmuch as he is substituting common air for pure oxygen, his report will not be conclusive.

Asphyxial symptoms always warn the anesthetist, however, giving abundance of time for the application of simple means for resuscitation, namely, rhythmic traction on the tongue, douching the face with cold water, pulling the chin upward, uniform pressure on the chest, and, in cases of complete suspension of respiration, weak ammonia held to nostrils, etc. Hypodermic injections of strychnin and brandy or ether do no good; the same is true of amyl nitrite, and time should not be wasted trying these restoratives.

Let it be understood that death may follow nitrous oxid anesthesia when the gas is too freely administered, especially when not combined with pure oxygen. It seems to be the consensus of opinion of the medical profession that the time has arrived for the employment of the professional anesthetist, with whom the legal responsibility of death must rest instead of with the surgeon. Hospital staffs and operators are complaining of the loss of their anesthetists whom they have carefully trained. These men remain but a short time in our hospitals, on account of lack of remuneration, and engage in more lucrative practice.

It is generally conceded that there is no medical subject more grossly misrepresented than the concomitant effects of anesthesia. These effects are usually attributed to a thousand and one ills, and while they have been regretted by the surgeon, he has hitherto seen no avenue of escape.

Both primary and remote mortality of chloroform and ether admonish the surgeon to look for a substitute, which seems to have been found in nitrous oxid and oxygen, though the value of this substitute is not fully comprehended by the profession.

Experience shows that the much dreaded cyanosis is due to the lack of oxygen and not to any specific poisonous effects of the gas.

Regarding the danger of death, it is an established fact that the only cases on record of death from the administration of nitrous oxid were occasioned by the administration of this gas alone, and that death has never occurred when nitrous oxid combined with pure oxygen has been administered. Kolischer also quotes the statistics of Bellamy, who reports 4,000,000 administrations in England in four years. It is further stated that seventy-five thousand patients undergo this anesthesia in America annually.

Dr. Gustav Kolischer, a recent and ardent advocate of the use of nitrous oxid and oxygen in major surgery, quotes Israel, who says that 75 per cent of all the deaths occurring in his kidney work are heart deaths. "A perusal of the statistics of trustworthy surgeons shows that the great majority of their deaths in prostatectomies occur in the first forty-eight hours. Nothing is more feared by laparotomists than the paralysis of the bowels due to general anesthesia and the suspension of the activity of the kidneys."

Complex apparatus and trained anesthetists have failed to lessen the deleterious influences of anesthetics on the heart, excretory organs and general vitality, or to alter the total results.

Yet literature, up to the present time, attributes none of these results to nitrous oxid and oxygen; and this statement coincides with reports of such American surgeons as Kolischer, Beck, Bevan, Baccus, Andrews and Lobdell. Our own specialists, like Teter, Thomas and Schamberg, concur in this report. I have during eighteen years performed approximately thirty thousand administrations without a single accident, and at least one hundred of these administrations were for major operations. One office in Philadelphia reports nearly three hundred thousand administrations without an accident.

The anesthetic power of nitrous oxid and oxygen has never been doubted, but the cyanotic conditions arising from its use prevented its adoption to any great extent until, of late, pure oxygen has been the necessary adjunct to place it foremost in anesthetics.

The most noteworthy advance in the use of nitrous oxid and oxygen, as an anesthetic in major surgery, is due to the admixture of pure oxygen, which has thoroughly changed the plan of administration.

Many experiments like the one which M. Martin reports have been tried. He kept a dog in a chamber for three consecutive days, giving it nitrous oxid and 15 per cent. oxygen, after which it regained its normal faculties.

Sprouting seeds fail to grow when placed in nitrous oxid, but resume their growth when pure oxygen is added. Let it be understood that atmospheric air is not a satisfactory substitute for oxygen, especially vitiated air of the crowded surgery room, and that cyanotic conditions may be overcome eight times quicker with pure oxygen.

It is impossible to state definitely the percentage of pure oxygen that may be administered to a patient,

* Read in the Section on Stomatology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

since there are no fixed rules and every patient requires treatment according to that patient's susceptibility to anesthesia. To one patient, 92 years of age, I administered 25 per cent. oxygen at the close of one hour's anesthesia, while other patients are awakened on a 5 to 10 per cent. An experienced anesthetist will quickly supply the needed proportions required by each patient.

It should be remembered that other anesthetics depress, while nitrous oxid and oxygen stimulate, and the heart is the last organ to give up its function. One of the chief barriers to the universal adoption of this, the safest of all anesthetics, and the one chiefly considered by the surgeon, is the expense, which, however, is not prohibitive, as it might seem. The actual expense per hour is approximately $6 in consumption of gases.

It should be known that the surgeon in many cases is not free from the censure of selfishness when he will not share his fee with the anesthetist in order to permit his patient to escape the primary and secondary effects of general anesthesia. The anesthetist should be well paid and thus encouraged to devote himself to his specialty.

It is important to mention at this time a new apparatus, invented by Dr. Charles K. Teter, of Cleveland, Ohio, which makes it possible to administer definite proportions of nitrous oxid, chloroform or ether, with pure oxygen. I use the apparatus exclusively in my anesthesias, as does the inventor, Dr. Teter. Important among his recent additions is a warming attachment eliminating the refrigeration of cylinders, also permitting the patient to breath warm air.

In obstetric practice this anesthetic is excellent, because we may obtain analgesia and even anesthesia without muscular relaxation or disturbance of the normal course of labor. Uterine contraction is not in the least interrupted by the use of this anesthetic according to the following method: On the approach of labor pains the patient is permitted to inhale three or four breaths, placing her in a state of analgesia; the inhaler is then removed; and the process is repeated as often as necessary. Should it be desired to retard labor, a small percentage of chloroform may be added. Owing to the rapidity of the action of the gas and its rapid elimination it stands foremost as an obstetric adjuvant. I report two cases of directly opposite type:

CASE 1.—Patient was a multipara, aged 40. Her first child had been delivered with instruments, after thirty-six hours' dry labor. The patient had the left ovary and tube removed and extensive adhesions, due to localized peritonitis, broken up. Her general condition was one of muscular atonicity, malnutrition, etc., due to previous years of suffering preceding laparotomy. The patient became pregnant fifteen years after the operation, gained thirty-six pounds during gestation and was restored to normal health.

Anesthesia.—At full term and approach of delivery, preparation was made to use gas and oxygen. The patient was instructed to refrain from calling for the gas during the early stages of labor. When the pains became severe and more frequent, she was permitted to inhale about four breaths and, as numbness was felt, the mask was removed. This was repeated during four hours with gratifying results to the patient. To quote her statement: "Childbirth has no more terrors."

CASE 2.—The patient was a multipara, aged 30, robust, muscular and athletic. The onset of labor indicated rapid birth. The pains came thick and fast with increasing severity.

Anesthesia.—The patient demanded gas from the beginning. A rigid and undilated os required retardation of labor, which could not be obtained with nitrous oxid and oxygen alone, so 6 per cent of chloroform was combined with the gas until dilation was obtained and then the former methods pursued. The patient was delighted, and extolled the method. Labor was normal and the placenta was naturally expelled.

Final deductions from these cases are: 1. There is no danger of postpartum hemorrhage superinduced by the anesthetic. 2. Patients may have abundance of anesthetic to relieve suffering. 3. A safe and reliable anesthetic may be constantly at hand in case of instrumental or abnormal delivery.

I herewith briefly present a few average abstracted cases and reports of surgeons for whom I have administered this anesthetic:

CASE 3.—Patient, male, aged 48. Operation by Drs. L. L. McArthur and L. E. Frankenthal for carcinoma of pancreas with secondary obstruction to common duct and subsequent enlargement of gall bladder. Patient extremely jaundiced. Nitrous oxid and oxygen anesthetic, one hour and thirty minutes. Results ideal. Patient awakened perfectly rational, and conversed five minutes after operation.

CASE 4.—Patient, male, 30 years of age, tanner. Double inguinal hernia, complicated on one side by omental prolapse, which was adherent to sac, due to old injection of phenol into sac for purpose of cure. Anesthetic, nitrous oxid and oxygen, for one hour and twenty minutes; in every respect satisfactory; patient did not resist in the least and came out of anesthetic with hardly any after-effects. He had a slow pulse and vomited once three hours after anesthetic. (March 20, 1908, Dr. Carl Beck.)

CASE 5.—Patient, female, wife of physician. Large internal and external hemorrhoids, cyst of vagina and perineorrhaphy. Nitrous oxid and oxygen anesthetic for about one hour, excellent anesthetic, no after effects except a slight nausea. (March 24, 1908, Dr. Carl Beck.)

CASE 6.—Patient, female, 48 years of age, "came to hospital March 10, 1908, in an extremely anemic condition due to uterine hemorrhages which had continued for six weeks previously. The vaginal hysterectomy, which was performed on March 12, required an anesthetic for nearly two hours, owing to the complications in the case. The patient was awake ten minutes after the operation, with no ill effects from the anesthetic, no vomiting having followed, and kidneys kept on secreting three to eight ounces of urine every three hours without catheterization. The patient has made a splendid recovery. (Dr. Emil Beck.)

CASE 7.—Patient, male, weighing about two hundred pounds, very powerful, alcoholic, on whom an operation for perivesical abscess with plastic work on the urethra had to be performed. Operation very extensive, for perineal and suprapubic cystotomy. Patient took over four hundred gallons of gas and 1 to 5 per cent of oxygen during the operation. Patient awoke in the operating-room five minutes after the anesthetic was stopped, talked rationally, had no bad effects from the anesthetic, and could be fed with a light diet the same day.

"For difficult cases, or those in which kidney complications are feared I believe this anesthetic is preferable to ether, as the patients are always in better condition as soon as they wake up." (Dr. Emil Beck.)

CASE 8.—Patient, male, aged 5. "At age of two years had severe endocarditis without rheumatism or other apparent cause; life despaired of. Mouth breather, with occasional running ears and intermittent deafness. Examination of heart showed evidence of slight left heart enlargement and systolic murmur at apex and another loud one with seat at aortic area. Pulse-average 85, of fair quality with an occasional intermission. Owing to above condition chloroform or ether was contraindicated. Removal of adenoids by means of Löwenberg's forceps introduced by the mouth and straight forceps by the nose. General anesthesia by nitrous oxid and oxygen. Was most satisfactory in every way. May 6, 1908." (Dr. A. M. Corwin.)

CASE 9.—Patient, female, aged 38. "Ovariotomy, appendectomy and Coffey's operation for shortening round ligaments. Patient was anesthetized with nitrous oxid and oxygen, taking 7 to 10 per cent of the latter, with not a particle of cyanosis present. No nausea or disagreeable after-effects. A delay

of one-half minute was occasioned to obtain relaxation when adhesions were broken up from the inflamed uterus. A greater test could not have been made of this anesthetic than in this case, which proved highly satisfactory in the presence of one hundred visiting physicians. The only possible criticism of this anesthetic is the expense." (May 29, 1908, Dr. A. J. Ochsner.)

CASE 10.—Patient, male, aged 35. "An incision was made from the external canthus of one eye, through the eyebrow, across the bridge of the nose, through the opposite eyebrow to the external canthus. A Gigli saw was passed into the incision, through bone and periosteum, sawing through the septum between the two frontal sinuses. This exposed the cavities of the frontal sinuses, which were thoroughly cleansed of their pathologic condition (granulations); the natural opening into the nose was thoroughly established by enlarging, and through the floor of this frontal sinus the interior ethmoid cells were thoroughly broken down and curetted. Nitrous oxid and oxygen was administered by Dr. Ream during the whole time of the operation, which lasted two hours and which was a perfect success as far as anesthesia was concerned, without the least bad after-effects. In fact, the patient was awake before he reached his bed. This patient had two radical operations on his mastoid previously and during each of these two previous operations a great deal of trouble was encountered from the anesthesia, which was both ether and chloroform, the patient having bad after-effects especially." (May 9, 1908, Dr. Joseph C. Beck.)

I report three major operations in which I administered nitrous oxid and oxygen for Dr. Gustav Kolischer during May, 1908:

CASE 11.—Patient, male, aged 30. Tumor of the bladder. Suprapubic operation. Total suture of bladder and skin incision. Duration of operation, fifty-four minutes. Patient returned conscious to bed. Urinated naturally three hours after operation.

CASE 12.—Patient, male, aged 40. Papilloma of the bladder. Suprapubic total suture of the bladder and skin incision. Duration of operation, forty minutes. Urinated naturally three hours after operation. Slight nausea for about five hours.

CASE 13.—Patient, female, 63 years old. Cyst of the left ovary, and cancer of the cervix. Abdominal celiotomy, removal of the cyst and Wertheim's operation for cancer of the uterus. Duration of the operation, sixty-five minutes. Pulse, 88. Patient regained consciousness after twenty-five minutes. No nausea. Took fluid without any discomfort.

CASE 14.—Patient, female, aged 58. Exploratory laparotomy. Suspected uterine sarcoma. Case pronounced inoperable on account of severe growth and extensive adhesions. Patient had severe myocarditis. Was anesthetized with nitrous oxid and oxygen for forty-five minutes without disagreeable symptoms. Marked absence of cyanosis and nausea. Recovery within five minutes. (June, 1908, Dr. E. C. Dudley.)

CASE 15.—Patient, female, aged 60. Vaginal and abdominal hysterectomy. Same anesthetic, lasting one hour and ten minutes. Results ideal. To quote Dr. E. C. Dudley: "This is the best anesthetic I ever saw in such grave cases." This opinion was also concurred in by Dr. C. P. Caldwell.

52 State Street.

DISCUSSION.

DR. C. K. TETER, Cleveland: I have for the last five years devoted my time exclusively to investigations along this line. I have administered this anesthetic over 12,000 times, and over 1,000 of these administrations were for extensive cases of major surgery lasting from a half hour to three hours. So far as my experience goes, the time does not make any difference; you can anesthetize a patient for a half hour or for three hours, if consistent with modern surgery to keep the patient under the influence of an anesthetic that long. How long a patient could breathe nitrous oxid without bad results would depend a great deal on the condition of the patient and the way it was administered. Nitrous oxid and oxygen form undoubtedly the safest anesthetic now known, and it is more free from after-effects than any other. Following its use, no degenerative changes take place in the system so far as we have yet discovered. I have given it in all stages of degenerative conditions in the system—sugar in the urine and other kidney diseases, and have never yet had complaint that the patient was rendered any worse. It is quickly eliminated from the system.

The administration of nitrous oxid and oxygen for a major operation requires considerable skill. Almost any one can render the patient unconscious so that he will not be cognizant of the pain of minor operations; but to obtain complete relaxation for extensive laparotomies requires an expert. As a rule, when we begin work with surgeons in laparotomy or other extensive work, they require relaxation; but after they get used to this anesthetic and accustomed to a little rigidity and necessarily more or less cyanosis, they put up with these factors on account of the patient being in a better condition, without mixing chloroform or ether with the nitrous oxid. At first surgeons said that the rigidity hampered them, but now they find that rigidity throughout the whole operation helps more than it hinders; when they close the incision they can do it more rapidly than if the muscles were flabby.

The nature of nitrous oxid is such that to derive its anesthetic effect it has to be given practically pure. That is its drawback. If we could use 50 per cent. pure and get the desired anesthetic effect, it would be an easy matter to administer it, but we have to use it about 90 per cent. pure, and with 10 per cent. only of air, respiration is rendered difficult. For this reason the combination of oxygen with nitrous oxid gives better results than dependence on air. In the average case, eight parts of oxygen will overcome the asphyxial effect of the nitrous oxid. If you are depending on the atmosphere to get the eight parts oxygen, it will be necessary to admit about forty parts air and unless your patient is extremely susceptible to the effects of nitrous oxid you will not get surgical anesthesia. By means of the nasal inhaler, the anesthetic being taken through the nose, the mouth is not obstructed, and oral operations can be performed without the addition of chloroform or ether. With a nasal inhaler you can keep your patient under the influence of the anesthetic indefinitely. It is more difficult to use than the face inhaler, but it can be done very nicely so that all oral operations, as extraction of teeth, etc., can be done as a surgeon should do his work. The idea of the dentist giving nitrous oxid and then accomplishing his work in a few seconds, is not a good one, for he can not do it skilfully and can not leave the mouth in the condition in which it should be left. If by means of the nasal inhaler he keeps his patient anesthetized sufficiently long for him to do the work properly, the gums will be left in a good condition, he has time to clean up the whole mouth at one operation, and when the patient comes out from under the influence of the anesthetic he has no recollection of the work. In doing extracting for dentists I seldom use a face-piece, but invariably the nasal inhaler. I want to know that I can take all the time necessary to do the work as it should be done.

DR. FREDERICK B. MOOREHEAD, Chicago: Nitrous oxid is an established means of anesthesia. Prominent surgeons are using it, and gradually are coming to use it more and more. The question as to the safety of nitrous oxid anesthesia has not been decided. Chloroform has been used as a general anesthetic for a great many years, and only within the last three or four years was its real danger discovered—that of the production of diacetic acid and acetone and subsequent fatty changes in the liver and other vital organs, causing death as a secondary result. We do not know what the permanent effect of the two-hour administration of nitrous oxid is going to be on the hemoglobin after a long period of time. The work of greatest importance in this is yet to be done, and that is to determine the relation between nitrous oxid and hemoglobin. For two years I have with two or three others been trying to do that work, but we have found it exceedingly difficult, inasmuch as it requires a great deal of physiologic chemistry, because hemoglobin is a very intricate compound to study; but that is where the work must be done. The administration of nitrous oxid anesthesia, whether we shall use air or oxygen, depends a great deal on the personal equation, a factor we must

always keep in mind in discussing every subject. I can not take the position that a man can not give nitrous oxid perfectly unless he uses oxygen; no other man can take the position that it can not be administered without air; the administration of this anesthetic depends more on the personal equation than does any other. Our trouble in giving nitrous oxid over a long period of time has been in the fact that we have asphyxiated our patients and not anesthetized them. Its absorption is necessarily slow, and where that critical contact between hemoglobin and nitrous oxid takes place we have not yet discovered. There is undoubtedly an absorption of nitrous oxid into the hemoglobin, this producing the anesthesia. By administering the drug over a long period of time we get anesthesia, and the production of a large amount of carbon dioxid, which is deleterious. We not only get asphyxia, but delirium and toxic conditions following the absorption of a large amount of carbon dioxide. The relation between nitrous oxid and hemoglobin, the nature of the combination and the possible effect on the patient constitute, I believe, the vital question in the whole matter.

The patient will not become cyanotic if gas and air are given in the right proportion. There may be difficulty in producing the anesthesia, however. We can with nitrous oxid and air get anesthesia in the majority of cases without asphyxia, but we have patients with apparently an idiosyncrasy, who, therefore, require more gas to produce anesthesia than is safe to give.

DR. ORVAL J. CUNNINGHAM, Kansas City, Mo.: It appears that nitrous oxid and oxygen anesthesia is as yet in its infancy. We do not know the theory of its dangers, neither do we know the theory of the dangers of chloroform and ether. We know that deaths from nitrous oxid are rare, and that deaths from chloroform and ether, especially chloroform, are comparatively common. In the millions of times that nitrous oxid has been administered there have been reported only about thirty deaths.

The chemical union of nitrous oxid with the hemoglobin—and it seems that such does occur—must be very loose because its action is transitory and when the gas is withdrawn a quick cessation of the symptoms follows. We know that the nitrous oxid is a true anesthetic agent aside from its asphyxial properties. Pure nitrous oxid, nitrous oxid and air, or nitrous oxid with a deficient amount of oxygen, anesthetizes by the combined action of asphyxiation and the anesthetic properties of the nitrous oxid. We can get complete anesthesia in from four to six minutes by simple rebreathing without the use of any anesthetic agent. This asphyxial element of nitrous oxid anesthesia is easily overcome by the proper use of oxygen, but not with air. The cyanosis produced by nitrous oxid with deficient oxygenation, however, is very different from the cyanosis produced by the action of chloroform and ether, except when the cyanosis of chloroform and ether is from obstructed respiration. The cyanosis of nitrous oxid is from a lack of opportunity for the blood to take up the normal amount of oxygen, is not from an abnormal condition of the nervous or circulatory systems, and is no more dangerous than the cyanosis caused by a paroxysm of pertussis. The cyanosis of chloroform and ether is caused by capillary stasis, which is brought about by atony of the capillary vessels or by impaired heart action. The cyanosis of nitrous oxid comes quickly and disappears quickly when oxygen is added; the cyanosis of chloroform and ether comes on slowly, is preceded by an interval of ashy pallor, and disappears slowly, even though pure oxygen is given. Nitrous oxid and oxygen anesthesia is hardly practical for laparotomies in severe cases, because of abdominal rigidity. For other surgical work it is eminently practical if properly administered.

I believe that attention has not been called heretofore to the action of nitrous oxid and oxygen followed by ether, as in the use of Clover, Bennett and other apparatus. With them it is necessary to discontinue the gas at the end of a minute and a half to two minutes because of the asphyxiation which would otherwise follow. This necessitates pushing the ether, and also the use of rebreathing to prevent the patient from coming out. But even then the patient will almost invariably come out enough to swallow about as much as if ether had been given alone. But if oxygen be added to the nitrous oxid, complete nitrous oxid anesthesia can then be continued until ether narcosis is thoroughly established. By this means we prevent a return of the reflexes between the gas and ether which eliminates the greatest factor in the production of postoperative nausea and vomiting, viz., the swallowing of the ether-laden secretions of the mouth.

THE NON-RELATIONSHIP OF ACTIVE CELLULAR DIVISION TO THE PROGNOSIS IN MALIGNANT DISEASE.*

GUTHRIE McCONNELL, M.D.
ST. LOUIS.

There appears to be a wide-spread opinion that the progress of a given case of malignant disease can be foretold by means of a microscopic examination of a portion of the tumor. In other words, it is believed that the number of actively dividing cells found in the tissue bears a definite relation to the rapidity of the growth of the neoplasm. The greater the number of actively dividing cells, according to this opinion, the more rapid the formation of new tissue and consequently the graver prognosis.

In various text-books, in monographs, in pathologic reports, and by direct word of mouth is the above thought passed on from one to another.

Attention was first drawn to this subject by the fact that the majority of squamous epitheliomata contain many mitotic cells. As is well known, this form of carcinoma is not as a rule as malignant in its course as are the other varieties. It was found that in a large percentage of these cases there were many mitotic figures, although the clinical history was that of a slowly growing neoplasm. This being the case, it was thought well to investigate, as thoroughly as possible, the question of the relationship, if any, between the presence of actively dividing cells and the seriousness of the lesion.

In the estimation of the activity of the cells no very accurate method could be devised. Those cells whose nuclei were not broken down and which stained intensely were taken into consideration as well as those in which actual mitotic figures could be observed. The fact that the nuclei remained unbroken and stained very deeply was considered as an indication of the presence of a large amount of chromatin such as is found in actively dividing cells.

The question as to the number present was also a difficult one to answer and had to be done in a purely personal and arbitrary way. It was not difficult to separate the "very many" from the "very few" but it was at times hard to decide when the "many" point had been reached. If several fields of the microscope had to be examined before active cells could be found that specimen would be considered as having few. If every field had several it was then said to belong to the type having many dividing cells.

After taking up the percentage of specimens containing many and few mitotic cells their relation to the duration and to the rapidity of the growth was considered. These figures are open to criticism on certain grounds, particularly when the rapidity is examined into. In many of the cases there is a history of the growth having been present for a number of years, during the greater part of which time it has

*From the Laboratory of the St. Louis Skin and Cancer Hospital.

progressed but slowly. In a number of such instances the patient, when seen by the physician, will say that for the past few months the tumor has been increasing rapidly in size. This is most common in cases of squamous epitheliomata of the skin surfaces. Out of thirty-six instances of squamous epitheliomata there were twenty-five (69.4 per cent.) in which actively dividing cells were numerous, while in the remaining eleven (30.6 per cent.) there were few such cells.

Of the above twenty-five cases with actively dividing cells there were fifteen (60.0 per cent.) in which the patient said that the epithelioma had been growing rapidly and ten (40.0 per cent.) in which there was a history of a slow course.

When the carcinomata are examined it is found that out of twenty-eight cases nineteen (67.8 per cent.) contained many active cells, while in nine (32.2 per cent.) there were few. These figures are practically similar to those found in the squamous epitheliomata.

Of the nineteen above cases thirteen (68.9 per cent.) were of rapid growth, while the remaining six grew slowly.

From a consideration of the foregoing it is evident that very little conclusion could be drawn concerning the significance of the number of the cell divisions. This point, it seemed, could be determined only by following the clinical course of the disease after the examination of the tissue. These specimens were obtained at the time of operation, fixed in Zenker's solution and stained in various ways.

In all there have been twenty-two cases followed, after leaving the hospital, for periods ranging from one of four months to one of two and a half years. From a study of these there does not appear to be any relationship between the abundance of dividing cells and the period elapsing before death takes place. In all these instances the number of active cells varied from many to extremely numerous; in none were there found but a few.

Of these above cases there were eight in which the patient said that the growth had been rapid. Three of these patients died eight, sixteen and seven months after the operations, the first two of senility, being eighty and seventy years old respectively; the third

TABLE OF CASES OF MALIGNANT DISEASE.

Name.	Sex.	Age.	Laboratory Number.	Nature and Location of Growth.	Duration.	Rate of Growth.	Number of Multiplying Cells.	Subsequent History.
J. N.	M.	71	693	Epi., lip	7 mo.	Rapid	Many	Died from interference with eating 7 months after first examination.
M. R.	F.	80	292	Car., breast	3 yr.	Rapid	Many	Died 8 months after first examination; senility.
E. S.	F.	70	287	Car., breast	2 yr.	Rapid	Many	Died 16 months later.
W. J.	M.	57	33	Epi., ear	5 yr.	Rapid	Very many	Alive 5 months later.
B. K.	F.	51	708	Car., uterus	1 yr.	Rapid	Many	Alive 6 months later.
Mrs. K.	F.	. . .	. . .	Car., nares	3 mo.	Rapid	Many	Alive 10 months later.
R. W.	F.	3	415	Car., cervix	1 yr.	Rapid	Very many	Alive 18 months later.
G. S.	M.	74	22	Epi., lip	11 mo.	Rapid	Very many	Alive 27 months later.
J. L. T.	M.	73	538	Rodent ulcer, chin.	14 yr.	Slow	Many	Died 6 months later from interference with eating.
Mr. S.	M.	62	888	Epi., palate	5 mo.	Slow	Many	Died 7 months later from interference with eating.
Mrs. C.	F.	52	687	Car., breast	2 yr.	Slow	Many	Died 6 months later from hip joint amputation. No recurrence in breast.
E. O.	F.	31	56	2d epi. of axilla	2 mo.	Slow	Very many	Died 7 months later.
S. O'M.	F.	54	. . .	Rodent ulcer, orbit	5 yr.	Slow	Many	Died 11 months later.
L. M. W.	F.	51	341	Car., breast	2½ yr.	Slow	Many	Died 17 months later.
Mrs. B.	F.	64	619	Car., breast	1½ yr.	Slow	Many	Alive 30 months later. No recurrence.
G. K.	F.	50	. . .	Car., uterus	6 mo.	Slow	Many	Alive 11 months later.
J. E.	F.	54	110	Rodent ulcer, ear	24 yr.	Slow	Many	Alive 4 months later.
M. M.	F.	70	152	Rodent ulcer, eye lid	6 yr.	Slow	Many	Alive 22 months later.
C. B.	F.	55	211	Car., breast	2 wk.	Slow	Many	Alive 24 months later.
M. L.	M.	45	645	Epi., lip	7 mo.	Slow	Many	Alive 12 months later.
Mrs. F.	F.	71	804	Epi., orbit	13 yr.	Slow	Many	Alive 7 months later.
C. Y.	M.	54	967	Epi., hand	3 yr.	Slow	Very many	Alive 6 months later. "Am practically well."

With rodent ulcers a somewhat different condition is found. As might be expected from their chronic course, there were in twenty cases only nine (45.0 per cent.) in which many active cells were present while in eleven (55.0 per cent.) such cells were very few. In all the twenty the growth of the tumor had been slow.

The duration of the growth also does not appear to have any bearing upon the number of active cells, the majority of the tumors containing many such. Of twenty-eight epithelial growths of two years' duration or longer, twenty-one (75.0 per cent.) contained many active cells. When thirty-six of less than two years' existence were examined, twenty-five (69.4 per cent) showed active division. From these figures it would seem evident that the duration has no direct bearing. There is, however, one point that might be brought forward that would tend to vitiate this conclusion. The patients usually come to the physician as a result of an increase in the rapidity of the growth of the neoplasm. At such a time the cells may be in a more active state of multiplication and in the tissues obtained the active cells would be more numerous.

died mainly as the result of interference with swallowing, the floor of the mouth being involved. The other five were still living when last seen, five, six, ten, eighteen and twenty-seven months later.

The remaining fourteen tumors had been of slow growth. In six of these cases the patients died in from six to seventeen months, but in several of them death was not the direct result of the malignant disease. One of them was a case of an epithelioma of the roof of the mouth. Another patient had a rodent ulcer of the chin. These patients died at the end of seven and six months from inanition. One died six months after the first operation as a result of a hip-joint amputation done on account of a fracture of the femur due to a secondary deposit of carcinoma from the breast. At the time of death there was no recurrence in the mammary gland.

The deaths of the other three patients occurred seven, eleven and seventeen months later. As the patients were seventy-one, seventy-three and seventy-four years old, senility was an important factor.

The remaining eight were still alive and apparently

well four months to two and a half years after the operation.

From the above results it would seem quite evident that the clinical course of the disease has very little relation if any to the number of actively multiplying cells in a given specimen of neoplasm.

It is clear then that it is not wise for the pathologist to attempt to make any prognosis concerning the duration of the life of the patient by drawing conclusions from his microscopic examination. It also would seem advisable not even to suggest that the tumor is apparently taking on a rapid growth, as that could easily give the clinician an incorrect idea.

The accompanying table gives a summary of the cases from which the conclusions are drawn.

410 North Jefferson Avenue.

THE VAGINAL, THE VERTICAL-ABDOMINAL, AND THE PFANNENSTIEL INCISIONS.

THREE PROCEDURES FOR ENTERING THE PELVIC AND ABDOMINAL CAVITIES.*

E. E. MONTGOMERY, M.D.
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Many and spirited have been the discussions over the relative merits and demerits of the vaginal and abdominal routes in the practice of pelvic surgery. In discussing them and the additional procedures, I shall endeavor to do so, not as a partisan, but with the sole purpose of making evident the conditions under which they may become useful, where one may be preferable, and thus enrich the resources of the conscientious investigator in this realm.

VAGINAL ROUTE.

Subsequent to, in many cases prior to infection, the tubes and ovaries not unfrequently drop into the retro-uterine pouch. The infection drains into this most dependent portion and forms a large collection varying between dirty serum and foul acrid pus, according to the character and virulence of the infection. Such a collection is walled off from the general peritoneal cavity by a mass of exudate,—Nature's barrier against the spread of infection. Incision through the posterior vaginal fornix, in such conditions, ensures the evacuation of the accumulation without danger of soiling the peritoneum. Independent tubal or ovarian abscesses can be opened into and drained without the spread of the infection. Under such circumstances, does it not seem the height of folly to attack such a collection from above?

Certain considerations are of importance in determining the selection of the vaginal route. The vagina must be dilated, or readily dilatable, hence the procedure should not be advised in a virgin or nulliparous woman with a small vagina. The collection, whether serum, pus or blood, must be situated in the retro-uterine pouch or be readily accessible through it. Collections in a single tube or a suppurating ovary situated above the superior strait are preferably treated by abdominal section. In the large majority of cases, the vaginal section should be made through the posterior fornix, for the reason that this is the most dependent portion of the peritoneum and drainage is most effectually accomplished. Access is here most readily afforded, as the tissue through which the incision is made is but a quarter of an inch in thickness.

Large collections of pus, however, will frequently necessitate an anterior colpotomy as well, in order to afford vent to accumulations in front of the uterus and the broad ligaments. The anterior incision facilitates the investigation and treatment of perisalpingitis and perioophoritis, when the affected structures are fixed in or near their normal situation. I would, then, advise vaginal incision for retro-uterine collections as a procedure which will render an abdominal incision at the same, or a subsequent date, less grave and may frequently make it unnecessary.

The vaginal route is of especial value in exploring and treating diseases of the tubes and ovaries, and particularly in obscure cases in determining the existence of ruptured ectopic gestation. Some forms of malignant disease of the uterus, some uteri containing small fibroids and occasionally inflammatory conditions of the appendages which justify hysterectomy are best treated through the vagina, particularly when the patient has a large quantity of adipose tissue in the abdominal wall.

ADVANTAGES OF VAGINAL ROUTE.

The vaginal route has the following advantages:

1. Drainage is from the most dependent portion of the peritoneal cavity.
2. In a fair proportion of cases, it permits the cure of the patient by a less radical procedure.
3. In a fair proportion of cases, it permits the cure of the patient by a less radical procedure.
3. The convalescence of the patient, even after a hysterectomy, is more rapid and attended with less discomfort than is associated with the same procedure through the abdomen.
4. The restoration to health is expedited, and the patient is spared such sequelæ as ventral hernia and ventral adhesions.
5. In many cases, it permits the peritoneum to be closed over the vagina, the stumps of the broad ligaments being brought out so that all ligatures and raw surfaces are excluded from the peritoneal cavity, leaving opportunity for the formation of adhesions. The latter statement can not, of course, apply where extensive inflammatory collections and adhesions have existed previous to operation. In such cases, dependence must be placed on walling off the intestines with gauze to prevent contact with the raw surfaces.

DISADVANTAGES OF VAGINAL ROUTE.

The vaginal route has, as its opponents indicate, the following disadvantages:

1. The procedure necessarily must be, in many cases, a blind one, as extensive adhesions must be separated by touch.
2. Injuries to the intestines or previously existing intestinal sinuses are likely to be overlooked, fecal fistula may form and imperil life, or destroy the health and comfort of the patient.
3. Extensive adhesions of the intestines are unrecognized, or form subsequent to the operation, and lead to obstruction and consequent disaster. The initial adhesion need only be a small one on the outer margin of the coil of gut to become a serious menace. With this adhesion as a fixed point, peristalsis may lead to twisting of the loop and result in obstruction. An ob-

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

struction may exist which other peristaltic movements may undo, producing symptoms of intermittent obstruction, or the torsion may become aggravated.

ABDOMINAL ROUTE.

The abdominal incision in the median line is without doubt the procedure capable of the widest application. It affords ready access to the pelvis, and when required may be so extended as to permit the inspection and manipulation of the contents of the entire abdominal cavity.

Through this incision every stage of an intricate and prolonged operation is continually under observation, ready access is afforded for manipulation, hemorrhage can easily be controlled, and injuries to important viscera recognized and repaired. Operation through this incision is by no means a blind procedure. It is not surprising that its advocates should feel that it fulfills all the requirements and leaves nothing to be desired.

Observation discloses, however, that the victim of an operative procedure suffers greater discomfort during convalescence than is experienced by the patient who has suffered a similar or greater deprivation of organs by the vaginal route. Nature's barriers are necessarily broken down, and both peritoneum and incision are exposed to infection. The situation of the wound is not the most favorable for drainage, as a portion of the cavity, generally that which has been subjected to the greatest injury, is below the most dependent portion of the incision. Drainage, consequently, must be against gravity. In acute infections, this defective drainage frequently compels the operator, in order to be safe, to do more than he would feel obliged to do had the vaginal route been substituted.

THE PFANNENSTIEL INCISION.

The Pfannenstiel incision, our third procedure for entrance of the abdominal cavity, is a curved incision, the convexity directed downward, just above the symphysis, passing through skin, superficial fascia and aponeurosis, exposing the pyramidalis and recti muscles. These muscles are separated from each other in the median line and the peritoneum is opened vertically. I have employed this procedure in over 200 abdominal sections and have found it especially acceptable in operations on the intrapelvic viscera. The muscle fibers being much more elastic than those of the aponeurosis permit a much more free exposure of the pelvis through a relatively small incision. In round ligament operations for retro-displacement it brings the operator directly over the ligaments he seeks.

In operations on the bladder, and in extirpation of the uterus for small growths, it is especially valuable. It is to be preferred in operations done on fleshy women, as the superficial incision can be made where there is the least deposit of adipose tissue. In closing the wound it has been my custom to close the peritoneum and muscle margins with a continuous chromic cat-gut suture drawn sufficiently tight to hold the surfaces in apposition and not constrict the muscle tissue. A second continuous suture unites the curved margins of the aponeurosis, and the third the edges of the skin. Particular care must be exercised to prevent any bleeding between the successive layers as a hematocele may form, which, if it becomes infected, will imperil the stability of the subsequent support.

ADVANTAGES OF PROCEDURE.

The procedure, in addition to the advantages named, has the following:

1. It permits a larger exposure of the field for a comparatively small incision.

2. As the interior and middle lines of suture closing the wound are at right angles to each other, the probabilities of subsequent hernia are lessened.

3. As the incision through the skin is, under ordinary circumstances, within the portion covered by the pubic hair, with its regrowth the site of the scar is completely obscured.

DISADVANTAGES OF PROCEDURE.

Its disadvantages are as follows:

1. It is of limited application and consequently unsuitable for the removal of fibroid tumors of any size.

2. The necessarily large opening of the cellular tissue makes it undesirable for the treatment of pus collections within the pelvis, as it is difficult to preserve the wound tissues from infection.

DISCUSSION.

DR. H. J. BOLDT, New York: I take decided exception to a statement by Dr. Montgomery as to the advantage of the vaginal over the abdominal operation. Dr. Montgomery said that convalescence was more rapid by the vaginal route than by the abdominal. The only advantage that I can see in the vaginal compared with the abdominal operation is the fact that there is some risk of subsequent ventral hernia and, furthermore, that there is considerable risk of intestinal adhesions to the parietal peritoneum. These are the chief dangers of the abdominal operation. I believe that those who have followed for many years the transactions of the New York Medical Society will perhaps remember that I was one of the first advocates of the vaginal operation. In fact, I was very enthusiastic about the vaginal operation twenty years ago, and up to fifteen years ago, but gradually I have limited the field of utility of that kind of work. There is no question that vaginal operations have their place in gynecologic surgery, but the field is more limited, I believe, in the hands of experienced operators than it was formerly. I have seen the work of the best gynecologists, exponents of vaginal operations, and it has confirmed my opinion that the operation has a more limited field than formerly was thought and taught. So far as my observation goes, in pelvic inflammation when there are many adhesions, its use is more limited than the abdominal operation, the advantages of which Dr. Montgomery has held before us. When, however, there is a full roomy vagina, and when the pathologic condition which we want to attack is in the cul-de-sac, the operation may be satisfactorily done by the vaginal route in most instances.

DR. RUFUS B. HALL, Cincinnati: I believe that the operation of vaginal section has a field, and likewise the abdominal operation. The real reason for doing a vaginal section on one patient and the abdominal section on another patient is not in order to get the patient up more quickly. Vaginal section should be done if a woman has an infection which, with operation by the abdominal route, will not be followed by the best results. Vaginal section is for temporary relief in one sense of the word. I would not carry the vaginal operation to the extent indicated in the paper. I would not limit my work by the vaginal section. In the septic cases, one does not want to give additional risk by having the pus reach the peritoneum. It is better to open the cul-de-sac and get rid of the acute infection. If the patient does not recover satisfactorily, one can do another operation later. I would not exclude the vaginal operation simply because of a narrow vagina. For the same reason, if there was infection and a large accumulation of pus, I would drain through the vagina for the temporary relief, and then when the acute infection was over I would do the other operation if necessary.

Dr. George Gellhorn, St. Louis: I used to be an enthusiastic advocate of the vaginal operation. For the last three years, however, I have practiced extensively the Pfannenstiel incision, with the result that I nowadays limit the vaginal route almost entirely to those suppurating cases that require either drainage or hysterectomy. In all other cases in which the conditions are not too complicated, or in which not too much room is required, I make use of the Pfannenstiel incision, because its advantages are to me very obvious. The intestines are, in this incision, never seen during the operation. The patient is in the Trendelenburg position. The introduction of gauze pads, etc., is unnecessary and, the intestines not being interfered with, not even touched, postoperative shock is greatly diminished. The late effect of the operation is very satisfactory. The scars are strong. I know of no case of hernia after this operation. I have had two cases of hematoma due to insufficient ligation of arteries in sewing up the incision. In spite of this, infection did not occur and the scars remained solid. Two years after the operation the scars were still very strong.

A minor advantage, yet one that is to be considered, is that of the cosmetic effect. These scars are almost entirely hidden beneath the pubic hair. The Pfannenstiel incision should do away with the original Alexander operation for retroflexion. Not even the best diagnostician with the finest of touch can absolutely exclude the presence of delicate adhesions and other lesions that may cause the patient a great deal of trouble even after the retroflexion has been operated on. I can not see how one can do a shortening of the round ligament through the inguinal canal, while an absolutely safe access to the round ligaments can be had by this suprapubic incision. We must not be dogmatic and try to fit our cases to the method, instead of the method to the case, but, all things being equal, I favor the Pfannenstiel incision to enter the abdominal cavity.

Dr. C. O. Thienhaus, Milwaukee: Five years ago, before this Section of the American Medical Association, I defended the vaginal route as the best method of procedure in all cases where it is feasible. To-day I have given up much of this work and favor the abdominal route. It is beyond dispute that in cases of abscess of the cul-de-sac of Douglas or parametritic abscess, furthermore in cases of infected retrouterine hematocele, the vaginal incision and vaginal drainage is the method and the only method of procedure. In cases of fibroid in the uterus up to the size of a child's head I was, up to five years ago, a strong advocate of the so-called *morcellement vaginale*. To-day I prefer abdominal hysteromyomectomy with retroperitoneal treatment of the stump or abdominal hysteromyomectomy according to Doyen's method. Two peculiar accidents, which I have not often found mentioned in gynecologic literature, have induced me to make this change. I operated in two cases of fibroid which had been subjected to treatment by electricity previous to the operation. During the *morcellement* of these fibroids by the vaginal route two small pus cavities lying intramurally in the wall of the uterus were opened and both patients died from a virulent septic infection, the source of which undoubtedly must be attributed to these intramural pus accumulations. It is my firm conviction that abdominal hysteromyomectomy would have avoided this accident and would have saved the lives of these patients. In cases of chronic adnexitis I was five years ago a great friend and strong defender of the so-called *castration vaginale générale* according to the method of Schauta (Vienna). To-day I prefer by far the abdominal hysteroappendicectomy. The reasons for this change are twofold: First, it is a well-established fact that in many cases of chronic adnexitis the appendix is adherent to the female pelvic organs, or even involved in the inflammatory process, and, as under such circumstances the appendix ought absolutely to be removed at the same time, abdominal section is by far preferable. Second, in cases of adnexitis on the left side oftentimes the sigmoid flexure is involved or even the primary seat of disease and needs surgical attention, and this can be given properly only by the abdominal route.

Dr. Charles Betts, Toledo: My choice of the abdominal or vaginal route would depend on whether the patient seriously objected to the scar or not. So far as the dangers to hernia are concerned, it makes little difference whether the incision is made according to the Pfannenstiel method or in the median line. The whole thing in a nutshell is how the structures are put together. So far as the peritoneum is concerned, I do not think that it cuts any figure. The principal structures are the fascia, the sheaths of the recti muscles, and if they are properly brought together, so that the edges are properly coapted, and if union takes place by first intention, there is no danger whatever of hernia. Whether or not the vaginal route is selected for evacuation of pus would depend entirely on the nature of this pus, how long it had been in the pelvic cavity, its true location, whether rupture had taken place in the tube, and whether there was mobility of the tube. If the tube was adherent, if there was present a large quantity of pus, and if the patient showed an elevated temperature, it would be an easy matter to puncture temporarily and drain, with the idea of doing the operation at a later date through the abdomen. On a number of different occasions I have had to operate by the abdominal route on patients who had been operated on per vaginam by reason of adhesions and pain and other annoying symptoms. How many times do we open the abdomen and find the omentum fast to the anterior abdominal wall, to the bladder, to the fundus of the uterus, to the tubes, to the head of the cecum, to the appendix, etc.? How can any man deal with that kind of trouble by going through the vagina? I have never felt favorably toward the vaginal route except when the operation was done only for temporary relief. We all know that the length of time that the pus remains in the pelvis has to do largely with its becoming sterile. If pus is confined in the pelvis for a number of months and the patient does not show an elevated temperature, that pus is almost invariably sterile. In such cases, one may open the abdomen and not even wipe out the pus. Of course, if there is a quantity of pus which would gravitate to the pelvic cavity, it would be a duty to wipe it out, but one can absolutely close up the incision in such cases without drainage and have satisfactory results. This is being done to-day by some of the most able men in the country. In an operation which I performed a few days ago, on making the incision, a large quantity of pus which had been confined for a considerable length of time ran all over everything. I heard from the patient yesterday and she is doing well without drainage. I do not believe that it is possible for a man to cope successfully with the inflammatory conditions mentioned, by the vaginal route.

Dr. O. Beverly Campbell, St. Joseph, Mo.: It does not seem to me that we should now discuss the possibilities of work done through the vaginal route. Ten or fifteen years ago it was settled that we could operate successfully through the vaginal route in inflammatory conditions of the pelvic organs, and when drainage can be established through an incision in the posterior cul-de-sac it is often a life-saving measure. The tendency is toward the abdominal route because of its superior advantages for complete work.

Dr. O. S. McCown, Memphis: Some one just now mentioned the fact that the longer pus remained in the cavity the more sterile it became. If there is a collection of pus in the posterior cul-de-sac, that should be incised and drained. If that does not cure the patient a suprapubic operation should be done after some time has elapsed, when it can be done with greater safety than when the infection is fresh. We gain more information sometimes by long observation of a few cases than by hospital observation of a great many cases. I have some cases under observation now in which I drained, posteriorly, cul-de-sac accumulations six or seven or eight years ago. I have observed those cases from that time until now. The suprapubic operation carries with it the idea of removal, not of drainage. All surgical procedures should have associated with them the idea of preservation of organs. If we can relieve a patient by vaginal incision and drainage, leaving the organs intact, if they are not giving the patient trouble, that patient is better off than one having those tubes and ovaries removed. One patient has expressed her extreme

satisfaction at the return of her menstruation after having had an infected extrauterine pregnancy discharged through a posterior vaginal incision. That patient is well up to the present time, six years after the operation. There were excessive adhesions. Recent examinations show that the uterus has become movable and, in fact, is practically normally movable, showing that the adhesions are not giving the trouble now that they did at the time of operation. So, from this standpoint, with reference to the safety of the patient and the preservation of organs, I wish to commend the practice of posterior incision where that is especially indicated, as set forth by Dr. Montgomery.

DR. E. E. MONTGOMERY, Philadelphia: When it comes to actual conditions and the analysis of relative positions, I stand very closely in relation to those who have been so severe in their condemnation of the vaginal route. The vaginal route, however, has a place in the treatment of patients who can be relieved with much less discomfort, with much less danger, and with much less sacrifice than by the use of the abdominal route.

While I have made the Pfannenstiel incision in over two hundred cases, I have not been so fortunate as Dr. Gellhorn. I have had three cases in which hernia occurred. All, however, were cases in which infection had existed. I would not choose this method of incision in cases in which I had reason to believe there was infectious pus within the peritoneal cavity, for the reason that we open up the cellular tissue to much more extensive degree than in vertical incision and it makes it difficult to protect the surfaces from infection.

Clinical Notes

A CYTOLYTIC FACTOR OCCURRING IN THE BLOOD SERUM IN MALIGNANT DISEASE.*

CHARLES E. SIMON, M.D.
AND
WALTER S. THOMAS, M.D.
BALTIMORE.

The following experiments were undertaken in order to ascertain the effect of prolonged exposure of cancer cells to the action of normal as well as to the patient's blood serum, the idea in mind being, on the one hand, that as the result of autoinoculation with degenerative products of the malignant growth autoantibodies of the nature of cytolysins might be formed, or on the other, that the defensive reaction of the body might find its expression in the absence or a diminution of anti-autolytic ferments in the blood serum. That such ferments normally exist has been shown by Opie,[1] among others, in the case of the leucocytes of the blood, and the same principle probably holds good for many other body cells. In the case of cancer tissue also, we could demonstrate that the mineral constituents of the blood serum play no essential rôle in the prevention of autolysis, since emulsions of cancer cells undergo rapid destruction, both when suspended in saline and in Ringer's solution.

The experiments were arranged as follows: The tumor material, removed at operation, was brought to the laboratory as soon as possible and an emulsion was made of the most cellular portions in saline and Ringer's solution, as also in the patients' and normal blood serum. Breast cancer was utilized almost exclusively, as tumors from other sources were usually so extensively infected with bacteria that they were entirely unfit for our purposes. The emulsions were drawn up into Wright capillaries, sealed and incubated for twenty-four, forty-eight and seventy-two hours at 37° C. Smears were then made on cover-glasses, hardened in alcohol, and stained over night in Giemsa's solution.

The saline and Ringer specimens invariably showed complete destruction of the cells; and it is noteworthy that this will also take place after a much shorter incubation. In several instances marked destruction was observed after several minutes' contact. In normal blood serum, on the other hand, the cells remain well preserved for the full period of seventy-two hours. Incubation for a longer period was not tried, but to judge from the appearance of the cells after seventy-two hours, there would seem to be good reason for supposing that they would stand a still longer exposure.

The behavior of the cells in the patient's serum, on the other hand, was variable. In most cases they remained in good condition here also, but in a few instances, marked destruction was noted after twenty-four hours. In one case this was extreme and occurred after serum and cells had been in contact for a few minutes only; very little difference indeed existed between this and the saline and Ringer specimens. The destruction in this case was so striking and so extensive that we feared there had been some error in technic; but a careful review of every step precludes this possibility, and while we have not seen the same degree of degeneration since, we feel confident that the cause of the destruction was inherent in the patient's serum and not accidental.

The rapidity with which the destruction occurs naturally suggests a definite cytolytic action in the sense of a toxic factor but as we see the very same thing in the saline and Ringer specimens the possibility must be at least admitted that it may be referable to a pure autolytic process, dependent on the absence of an anti-autolytic enzyme. This view finds a further support in the fact that normal sera, which ordinarily preserve the cells so perfectly, lose this power after being heated for thirty minutes at a temperature of 56° C.

Before concluding, an incidental finding, which is both interesting and suggestive, may be mentioned at this place.

On several occasions, while experiments such as those outlined above were being performed, accidental infection occurred in the laboratory, and we were struck with the fact that while streptococcus infection was repeatedly noted in the emulsions made with the patient's serum, and that complete destruction of the cells was then invariably observed, we never met with streptococci in the emulsions made with normal serum. Whenever organisms were here found, staphylococci were seen practically exclusively and it is noteworthy that their presence did not in the least interfere with the integrity of the cancer cell. In some of the seventy-two-hour normal serum specimens staphylococci were at times encountered in large numbers and had actively multiplied, without causing any destruction of the cells, as evidenced by comparison with corresponding specimens which had not become infected.

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*From the laboratory of Dr. Charles E. Simon.

1. Opie, E.: Enzymes and Anti-Enzymes of Inflammatory Exudates, Jour. Exper. Med., 1905, vii, 316.

Infrequency of Hemoptysis in Tuberculous Children.—Magruder, in the *Archives of Pediatrics*, states that the infrequency of hemoptysis in tuberculous children is probably due in great measure to the fact that they are overwhelmed by the effects of the disease in other organs and glands before the process in the lungs has become distinctly localized and the pulmonary tissue destroyed.

TRICHLORACETIC ACID.

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HARTFORD, CONN.

Numerous cases in my hospital and private practice treated with strongly concentrated solutions of trichloracetic acid prove to my satisfaction that we have in this preparation almost a specific for the great majority of diseases of the mouth, throat and cervical lymphatics.

In postoperative treatment of mouth and throat conditions trichloracetic acid prevents infections and secondary hemorrhage and enables the patient to swallow solid food without the slightest difficulty almost immediately following a painstaking application over comparatively dry raw areas. This is likewise true regarding cauterized surfaces and practically all diseases of mouth and throat and often one treatment will suffice.

Acute pain and swelling of cervical lymphatics disappears speedily (frequently within a few minutes) through applications within the faucial tonsil and about its base on the affected side. The entire tonsil may be covered if necessary and several applications may be made during one treatment. It is well to use the solution sparingly, however, although the only unpleasant symptoms likely to arise will be a slight dryness, preceded by a trivial stinging over the area treated. Preliminary cocainization, except perhaps in the nostrils, is seldom necessary. A strongly concentrated solution, as is well-known, alone or in conjunction with the actual cautery (inflammatory extensions are thus prevented), is most useful in the treatment of various infections of the nose and nasopharynx.

Dentists will find trichloracetic acid indispensable in diseases and postoperative treatment of the gums. As a disinfectant and deodorant in dentistry it will be found most efficacious. Trichloracetic acid will be found equally useful in the treatment of diseases of the mucous membrane and lymphatics elsewhere throughout the body. Chemists tell us it has no anodyne properties, but my experience, I believe, proves it to be one of the most remarkable of anodynes.

[COMMENT.—Our correspondent is rather enthusiastic in praise of trichloracetic acid. We agree that it is a valuable drug in certain conditions. It is now official, having been included in the last edition of the U. S. Pharmacopeia. The following appears in the "Physicians' Manual of the U. S. Pharmacopeia and National Formulary":

"USES: Chiefly as a chemical reagent; astringent, escharotic, hemostatic; to remove warts and other skin blemishes, in 10 per cent. water solution; astringent or hemostatic, 1 to 3 per cent. solution; must be used with care."

The British Pharmaceutical Codex says:

"Trichloracetic acid is applied as a caustic to the skin, and is less painful than nitric acid; it has also been employed in strong solutions as a caustic in chronic pharyngitis. Weak solutions, containing 1 per cent. or less, have a powerful disinfectant action, and such solutions may be applied to wounds and ulcers, or used in erysipelas and gonorrhea, without causing irritation. It is rarely taken internally, but from 2 to 2.5 decigrams (3 or 4 grains) well diluted have been recommended in gastritis. Liquefied trichloracetic acid is a liquid prepared by the addition of 10 per cent. of water to the crystalline acid."—EDITOR.]

A STUDY OF MALARIA IN CHILDREN.

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AND
B. B. WARWICK, M.D.
TALLADEGA, ALA.

The subject of malaria is generations old; the disease has ever been with us, and probably will ever be; yet, notwithstanding that there has been research after research and study on study of it, there seem to be many facts in regard to its clinical history, its etiology and the life and habits of its causative parasite that are yet to be investigated.

Our investigations of the subject have had in view the establishment of two facts: first, the percentage of apparently well people who have the malarial parasite in their blood; second, the length of time that the parasite may live and propagate in the blood and cause no malarial paroxysm. Therefore our observations were made on the well instead of the sick; and, furthermore, these investigations have not been confined to children entirely; the majority of the subjects, however, were children. Because Talladega is a city of many schools, observations on school children are more easily made than on adults, and the children are more easily kept under constant observation.

These observations were begun in September, 1907, after the schools for the deaf mutes and blind had opened for the session of 1907-1908. Smears of blood were obtained from a total of 610 children and adults.

These blood specimens were obtained on slides in the ordinary manner, and were stained with Jenner's, Wright's or Goldhorn's stains. Two hundred and ten of these specimens were obtained from deaf-mutes of both sexes and 85 from the blind, also of both sexes. The subjects ranged in ages from 7 to 20 years and came from different parts of the state. The remaining 215 were natives of Talladega, of whom 38 were children and 21 were negroes. The remaining 156 were men who were about their regular business. Among the deaf-mutes the plasmodia were found in 10.5 per cent. of the males and 6 per cent. of the females; among the blind, in 6 per cent. of the males and 3 per cent. of the females. This brings out quite a difference between the males and females; also between the deaf-mutes and the blind. We accounted for this decided difference by the fact that the females, as well as the blind, are in the house more at night and are better cared for, thereby lessening their liability to infection.

It was also noticeable that the majority of the mutes and blind in which the parasite was found were from the southern part of the state.

Of the 38 native children, the plasmodia were found in 8 per cent., and in 5 per cent. of the negroes. Of the 156 men the parasite was found in 14 per cent. We also found the plasmodia in 3 babies between three and seven days old, but in these the mother had previously had a paroxysm. Summing up the total, we found the plasmodia in 8 per cent. to 9 per cent. of the 610 cases examined.

Most of the patients whose blood contained the malarial parasite were kept under observation during the fall and winter. No quinin or tonics were given unless chills and fever developed, and then only sufficient quinin was given to control the paroxysm. Of those whose blood contained plasmodia only 3.5 per cent. developed malarial symptoms, and a majority of these had an attack of chills and fever in October, December and

February. In February there was an epidemic of influenza, and some of those infected with malaria had chills and fever during the attack of grippe. Of those infected with malaria 60 per cent. were brought down with this disease, and it was much more severe than in those who were not infected.

It seems, from these observations that many people carry in their blood the malarial parasite for many months without active symptoms of malaria; for we have observed the plasmodia from time to time for a period of from five to six months during which no paroxysms occurred.

The probable reason for the absence of malarial symptoms is that the number of parasites in the body is too small, since it is estimated that there must be from 200,000,000 to 300,000,000 in the human system to produce the paroxysm. It also seems that the intervention of some other disease causes the parasite to increase, thereby giving rise to malarial symptoms.

OBSTETRICS IN A NORTHERN MINING COMMUNITY.

FREDERICK BARRETT, M.D.
EVELETH, MINN.

A mining hospital practice on the northern range affords not only a variety of surgical, medical and obstetric experience, but also work in a veritable international congress. The birth-rate statistics are notably high in mining communities, so that obstetrics forms an important branch of the service. Being for the most part among the laboring classes, where the "higher civilization" with its concomitant constricted waist lines and atrophied abdominal muscles, has not left its stamp, there are fewer abnormal cases than in more metropolitan sections.

Some of the phases encountered among the conditions to be concealed with would undoubtedly greatly shock a practitioner who had been accustomed to engagement beforehand, and the opportunity to outline instructions for his patient—or to the interne accustomed to ideal preparations and conditions in the maternity wards.

Among the classes mentioned, one is rarely engaged or summoned, until labor is actively established, and the conduct of the case under the circumstances sometimes presented is a severe test of one's resources. These unusual situations are not without their humorous sides at times. For instance, a family of five occupied one sleeping room (the rest of a fairly large house being devoted to boarders), and the three children in a sort of a trundle bed at the foot of the mother's bed, stood up, ranging their little heads in a row over the blanket which had been thrown over the foot of the bed for a screen, and curiously watched the advent of a new brother. Their Polish mother did not seem at all perturbed over their marked interest in her progress.

On another occasion, an Austrian mother, in her hour of deep pain, was supported at her elbow by a bright little brown-eyed babe of thirteen months, who never wavered in his night-long vigil, and when she could not contain her outcries, the little chap would cling about her neck in tearful sympathy.

A Finnish husband, about to become a father, was so pessimistic about the chances of his firstborn emerging alive that he wanted to wager $5 on a stillbirth. It was explained to him that he was practically a sure loser, but he pressed the matter till the bet was accepted—though, be it added, the amount was allowed to apply on his fee. I have seen a Russian woman in a filthy bed within a few moments of my arrival, give birth to a child on a dirty gunny sack taken from the floor to protect the mattress. She was as thoroughly cleansed and provided for as possible under the circumstances, and her parturient period was without fever and uneventful. On the other hand, it is not surprising to learn that, although this was her ninth labor at full term, she had no living offspring.

The English women, principally from the mining regions in Cornwall, have large families and mother them well. I have seen more postpartum hemorrhages among French-Canadian mothers than among any other nationality. Jewish women make most solicitous and tender mothers. They require (and are tendered, as a rule) an immense amount of sympathy. Italian women make quite a function of the arrival of an heir or heiress, and it is difficult to interdict entirely the use of wines and fancy alcoholic preparations. Scandinavian women, as a rule, are well built for motherhood, but are not, in my opinion, so hardy at such periods as the Latin races.

A little diversion from routine was afforded in one case by an over-zealous and shaggy Fido, who ensconced himself under the bed of his Swedish mistress and resented my presence with a furry onslaught whenever the woman in her extremity of pain lamented with exceptional fervor. I have seen a little newcomer born in weather 44 degrees below zero, with no fire or heat in the apartment, whose first breath was a visible one.

The usual statistics obtain as to twin pregnancies. I have had but five cases of eclampsia in about 750 births, and in none of these had there been an opportunity for urine or other examination beforehand. I may add that all but one of them survived. This death, one from infection, complicated by puerperal mania, and one from placenta previa, comprise the mortality list for the above mentioned series of cases.

About two-thirds of these cases occurred in the night, and almost one-third of the patients were primiparæ. The oldest mother was 44 (this was her fourteenth confinement) and the youngest 16 years old.

LIGATION OF THE UMBILICAL CORD.

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In a series of 400 cases I employed the various textbook methods of tying and dressing the umbilical cord and found none of them to my liking. In attempting to eliminate the objectionable features of the various methods I evolved the following which may not be altogether new, but is in my opinion far superior in results to those in use by the majority of practitioners.

The tying of the umbilical cord is the first great crisis in the life of the new-born babe. His inheritance to a life of passive nutrition being cut off, his food and oxygen must be acquired from a new source, and assimilated in a new way.

The usual method of tying the cord two centimeters from the body of the child is most objectionable from a standpoint of drainage. Two grams of decomposing tissue drain their toxins into the circulation of the infant at the most critical period of its existence. This produces a toxemia and often causes a pyrexia which lowers the child's resistance to infection and disturbs its diges-

tion and excretions, thus creating a condition which I believe has much to do with second and third day cross babies. In addition, the cord is frequently inspected once daily by the nurse, thus increasing the chances of infection of the stump; and it must be remembered that the granulating surface left after separation of the cord is not immune to infection.

The ideal surgical procedure would be to amputate the cord at its union with the integument and close the wound with sutures, but the use of this method in private practice would not be practical.

In a series of seventy-five cases I have tied the cord at its union with the cutaneous surface and cut it two centimeters distal to the ligature, thus draining the stump from instead of to the child. I use heavy braided silk for ligature and dress with aseptic gauze and adhesive straps to prevent movement of the dressing. The adhesive straps are necessary, as without them the dressing is liable to be moved in handling the child, thus causing premature separation of the cord and hemorrhage, an accident which happened in two of my cases before I began the use of the adhesive straps. The hemorrhage, however, was of little significance in either case.

Under this method the cord separated on the third day in 70 of the 75 cases, leaving a healed, not a granulating surface, and many of the first week disturbances of infancy were avoided. There was disturbance in micturition in but 3 of 75 cases so treated, and 50 per cent. less cross babies than under other methods.

I found pyrexia in 20 per cent. of 50 cases in which the cord was tied two centimeters from the integument and in less than 3 per cent. of 75 cases in which the cord was tied at its union with the skin.

The principal advantages of this method are the avoidance of sapremia and the fact that the period of possible infection is greatly lessened if not eliminated.

LARGE DOSES OF ANTITOXIN IN DIPHTHERIA.

REPORT OF A CASE.

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Although the use of antitoxin in the treatment of diphtheria is now practically universal, there is still more or less doubt as to the expediency of administering large doses after ordinary doses have failed to produce any effect. In fact, the question of dosage is the only question that remains to be answered, so far as the therapeutic use of antitoxin is concerned. The determination of the requisite dose in a given case will probably soon be reduced to some trustworthy and generally practicable method; but until that has been done our only guidance will be the experience of those who have used large doses. Toward the enrichment of the literature of that experience I wish to contribute the following mite:

History.—On July 11, 1908, I was called to see a child, 8 years of age, who complained only of sore throat. Examination disclosed an exudate limited to the tonsils and resembling the exudate of follicular tonsillitis; the tonsils, however, were not much swelled. The pulse rate was 135 a minute, and the temperature was 103. Tonsillitis of the most innocent type may raise the temperature much higher than this, but in that case there will be considerable swelling and other distinct signs of an intense local inflammation. Such signs were absent here.

Course of Disease.—As I was in doubt regarding the diagnosis I used no antitoxin and even neglected to send a smear from the throat to the state bacteriologist. On the following day (July 12), the patient was worse. Both nasal passages were completely clogged, and although the exudate in the throat, where it could be seen, was more cheesy than membranous and was still limited to the tonsils, I was convinced that the disease was diphtheria, and I accordingly administered 12,000 units of antitoxin in two doses separated by an interval of six hours.

July 13: Temperature was 104.5 and the pulse 150. The patient lay in a deep stupor from which it was difficult to rouse her. A white exudate now extended across the posterior wall of the pharynx, but still avoided the uvula and the pillars of the fauces. A thin, serous fluid trickled from the nostrils. Nasal breathing had been entirely suspended, and the mouth was wide open. I now took a smear to transmit to the state bacteriologist, although there was no doubt in my mind as to the nature of the disease or as to the inadequacy of the doses of antitoxin that had been administered on the previous day. I accordingly administered 23,000 units in the space of six hours.

July 14: As there had been no improvement, I gave all the antitoxin that was left in town, which was only 12,000 units. The patient's nose was now considerably swelled; the lids of the left eye were thickened and reddened by an intense inflammation, and the eye itself appeared to protrude distinctly as if there were a unilateral exophthalmos.

July 15: The patient's condition was unchanged, and I was now confronted by the angry opposition of the frightened neighbors, who shouted across their back fences that I was killing the child by injecting a mysterious poison into her veins. I quickly quelled the mutiny in the patient's household, and, as fresh supplies of antitoxin had arrived, I injected 19,000 units at a single sitting. The state bacteriologist's report was received, and it confirmed my diagnosis.

July 16: There was some improvement. The pulse was about 140 all day; the temperature ranged close to 105. The nose was still completely clogged, and the protrusion of the left eye was still present, but the exudate was disappearing from the tonsils, and the pulse was of a better quality. On this day I gave no antitoxin.

July 17: There were slight indications of improvement everywhere except in the temperature, which was 104.8. Accordingly, after waiting till evening, I injected 9,000 units more.

July 18: The pulse had fallen to 100 a minute, and in every way the patient was better.

July 19: The protrusion of the left eye had disappeared, the inflammation of the lids had been replaced by a paralysis of the upper lid, the temperature was normal, the pulse rate was 86, and the patient was breathing through her nose and clamoring for more food.

Cathartics, antiseptic sprays and gargles, strychnin and whisky were used as indicated, and were administered by a trained nurse; but the point of interest is that in the space of five days 75,000 units of antitoxin were injected without any evidence that any of it had done any good until the last 9,000 units were used. All the antitoxin used in this case was fresh and was the product of the two principal laboratories in America.

Generosity of Surgeons.—John C. Munro, Boston, in the address in surgery before the Canadian Medical Association, said that a significant quality that belongs to our profession is the generosity of the surgeons of one locality toward those of another in freely giving and receiving the good things that spring up in our art. It is a refreshing sign of broad culture and does much to destroy the petty jealousies that are a heritage of past generations.

A SIMPLE RESTRAINT.

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If often becomes necessary to restrain, for a brief period, some patients admitted to the accident ward of a hospital. In the semi-conscious state following the grand mal of epilepsy, in hysterical males particularly, alcoholic delirium, concussion of the brain, cocainism and similar conditions of cerebrospinal excitability or incoordination, temporary measures are demanded until therapeutics or hydrotherapeutics can be rationally employed. The majority of such patients will not remain in bed; moral suasion is useless; and sometimes the patients are perverse, combative, pugnacious, and even homicidal.

In the emergency hospital, at my suggestion, we have had made a hammock of one-fourth inch cotton rope, seven feet six inches long, six feet wide at its center, tapering to three feet at each end. From the ends guy-ropes extend two feet six inches and terminate about an iron ring three inches in diameter. To use the hammock as a restraint, it is spread on a bed, the patient placed on it, and the sides folded over to meet in the middle line above him. The ends and free edges are then laced up by a piece of rope about twelve feet long, passing through the meshes, and securely tied. The patient becomes enclosed in a torpedo-like rope lattice, fitting him snugly and preventing excessive movements or his escape. The hammock is then suspended from hooks fastened in the wall. The bed can be removed or left under him.

The constant use of this simple apparatus for nearly a year has proved its merit. It is comfortable, minimizes the possibility of injury, and it is clean, in that any dejecta escape at once, and the patient is not compelled to lie in them. The patient is rarely kept in the hammock for more than three or four hours, and not uncommonly he is aroused from a peaceful sleep to be discharged. The material for the entire outfit costs less than four dollars, and any one with a nautical turn can knit the hammock. It can be scrubbed and sterilized without injury.

The Farragut.

A SIMPLE DEVICE FOR FACILITATING SPHYGMOMANOMETRY.

WILLIAM L. BANER, M.D.
Visiting Physician, St. Vincent's Hospital.
NEW YORK.

The double-bulb sphygmomanometers, such as the Riva Rocci and the Cook, are comparatively easy to use. Unfortunately these instruments are not available for recording diastolic pressure, and the large netted bulb is not at all durable. In fact, it is apt to blow out at the most inopportune moment. In using Janeway's or other single-bulb sphygmomanometer considerable skill is required. The novice, in particular, is apt to give a very jerky performance. It is certainly not at all rare to see two hospital internes taking a blood pressure where one ought to be sufficient, the assistant in each case manipulating the needle-valve while the operator controls the pulse and bulb.

That this difficulty is a real one is shown by the various suggestions which from time to time have appeared in the medical press. The tension indicator of Dr. Louis F. Bishop, of New York, using water pressure, is a sort of crude protest against the difficulties encountered in using the fairly accurate mercury manometer. Dr. W. A. Ruble,[1] of Washington, suggests that the nebulizer compressed air tank be utilized in place of the bulb. Of course we are not all provided with nebulizer tanks, and such an apparatus is not portable. In addition to this, unless the regulator is very carefully adjusted there is apt to be a shower of mercury.

Since last November I have been using on my Janeway sphygmomanometer a little device which enables the operator to keep one hand on the pulse and one on the bulb from start to finish, and has much simplified the technic and shortened the procedure. This consists in substituting an ordinary atomizer bulb for the Politzer bag, and placing a check-valve between this bulb and the needle-valve. This check-valve is of the type used in pneumatic tires, the spring being somewhat weaker. It can be regulated to a nicety without trouble, and once properly adjusted need not be touched for months. The proper adjustment allows the mercury to sink back very slowly when the bulb is released. If it does not fall at all the valve is too tight. If it falls too rapidly the valve is not tight enough. With the correct adjustment the mercury can be brought with ease to any desired point on the scale and held there indefinitely by slight pressure on the bulb.

The use of this little valve permits the determination of the diastolic pressure. It is much easier to handle than the double bulb, and much more durable. It has been in continuous use for several months now on my service at St. Vincent's Hospital and has given much satisfaction to the internes.

They can be made by any one, the only difficult point being the proper adjustment of the spring and plunger, each individual valve being tested on the sphygmomanometer and brought to the proper tension.

40 West Sixty-eighth Street.

THE RELATION BETWEEN WEIGHT AND AGE IN THE FETUS.

LUCIUS TUTTLE, M.D.
PHILADELPHIA.

The relationship between the length of the fetus and its age is easily kept in mind with the aid of Haase's rule, viz., during the first five months of gestation the age in months is multiplied by itself, and during the latter half of gestation the age is multiplied by five, the resulting figure being the length of the fetus in centimeters. I have endeavored to formulate a rule which shall furnish an equally easy method for recalling the weight of the fetus at any given age.

According to Roberts,[2] the slower growth of the fetal head during the later months of pregnancy is compensated for by the more rapid growth of the limbs; and the formation of dense bony tissue is counterbalanced by the formation of light fatty tissue, the result being that the specific gravity of the fetus is not materially altered, and its volume, and therefore its mass also, are proportional to the cube of any linear dimension, or to the cube of its age. Accordingly, he takes the cube of

1. THE JOURNAL A. M. A., June 6, 1908.
2. Lancet, Feb. 3, 1906, p. 295.

the age in calendar months and divides this by 104, thus obtaining a figure for the weight in avoirdupois pounds which agrees closely with the actual weight as determined by different observers.

My rule gives a good approximation to the actual weight without necessitating any arithmetical operations except such as are easily performed mentally. It is as follows:

From the age in months subtract two, square the difference and divide by two. The result gives the weight in hundreds of grams.

That is, at the seventh month, $7 - 2 = 5$, $5^2 = 25$, $25 \div 2 = 12\frac{1}{2}$, the weight accordingly being 1,250 grams. At the tenth month (i. e., at term, the word month being used throughout this article in the sense of a lunar month of four weeks), $10 - 2 = 8$, $8^2 = 64$, $64 \div 2 = 32$, weight 3,200 gm.

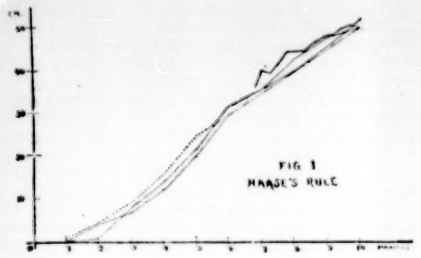

FIG. 1
HAASE'S RULE

The relationship will probably be more easily remembered in the form in which I have stated it than as the equivalent algebraic formula

$$w = 100\ (m-2)^2/2$$

which of course can be used instead if preferred.

I have diagrammatically indicated the relationship of length and weight to age by the usual graphical representation. Any point on the curve which is situated at a distance to the right of the vertical line corresponding to the age as indicated on the horizontal scale will be found at a distance above the base line corresponding to the length (Fig. 1) or weight (Fig. 2) of the fetus at that age. Time is expressed in lunar months, length and weight in the customary metric units.

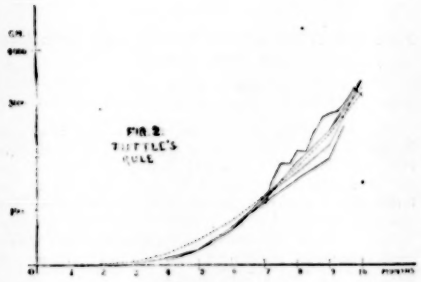

FIG. 2
TUFFLE'S
RULE

The dotted lines show the lengths and weights as calculated from the formula, while the solid lines give the actual measurements (generally averages) according to each of several different observers. It will be seen that the dotted line in each case follows the curve of actual length or weight closely enough for practical purposes; in fact, it generally diverges less from the general trend of the curves than they do from each other.

Therapeutics

RHEUMATISM.

Dr. Joseph E. Winter, Professor of Diseases of Children, Cornell University Medical College, read an interesting paper on this subject before the Alumni Society of Bellevue Hospital, on Nov. 6, 1907. He associates acute rheumatism with chorea and tonsillitis as having the same etiologic factors and the same complications, with, of course, endocarditis as the most important sequence. He does not mention or discuss the germ theory of acute inflammatory arthritis, but believes that hyperacidity of the system is sufficient to cause acute inflammation and account for all of the symptoms. While acute rheumatic inflammation may remain in one or more joints for a shorter or longer period, even months, the inflammation may then cease and the joint become perfect, there being no permanent impairment and no disorganization of tissue. "At any time in the course of a rheumatic fever the heart, the lungs, or the nervous centers may become involved and terminate life abruptly."

Winters believes that there is a positive chemical antidote and that this antidote is organic. Nature's antidote is natural salicylic acid. The synthetic salicylic acid, he believes, has no effect on the disease. Salicylic acid is quickly converted by the alkaline secretion of the intestines into an alkaline salicylate, sodium salicylate, while in the blood the bases are set free and salicylic acid is at once eliminated and appears in the urine in a few minutes. Winters believes it is this free base in the blood "which neutralizes the rheumatic virus," as it forms a chemical union with it, and as it must unite with an acid, therefore he reasons that the cause of rheumatic fever is an acid. As a further proof of this hyperacidity of the system he cites "the profuse, drenching, sour-smelling acid perspiration of rheumatics," and states that the saliva becomes acid, the urine is hyperacid, and the feces become acid in this fever. He therefore states that salicylic acid in its chemical ability to combat in the blood this acid poison is in consequence a specific in rheumatic fever, although it does not cure rheumatism. He believes, with Dr. Andrew H. Smith, of New York, that salicylic acid will cause rheumatic patients to become three-fourths well, but the other fourth of the disease lurks in the tissue fluids, and this fourth it is most difficult to eradicate. The salicylates, Winters claims, liberate their bases in the blood. They never reach the tissue fluids.

To neutralize this tendency to acidity in the tissue fluids he believes that we must administer the vegetable foods which contain three or four times as much basic material as animal food, and thus supply a chemical antidote for the remaining fourth of the disease. In other words, a patient with acute rheumatic fever is three-fourths cured by salicylates, and has the remaining fourth cured by a vegetable diet. Spontaneous cures or cures without drugs, he believes, are effected by this property of a suitable diet, viz., the ability of vegetable foods to neutralize the acid in the system.

"If for any reason the blood becomes less alkaline there is a disintegration of red blood cells, i. e., rheumatic anemia, often the only symptom of rheumatism in a child."

Winters thus sums up his belief: "In profound rheumatic states, as in hyperpyrexia, sodium carbonate of the plasma is decomposed and carbonic acid set free. Accumulation of carbonic acid shuts off oxidation. Menacing symptoms in rheumatic hyperpyrexia are due to rapid, large withdrawal from the blood of the basic element, sodium; fatal reduction in alkalescence of blood; liberation of carbonic acid; arrest of detoxicating oxidative processes." He believes this explains rheumatism from muscular and articular soreness following unusual exercise to rheumatic anemia and rheumatic hyperpyrexia.

A growing child is always on the verge of an excess of acid products from its metabolism because it uses so much of the basic mineral substance for its growth. This tendency is shown by the frequent attacks of gastrointestinal disturbance, generally due to an excessive acidity, with urticaria, tonsillitis, and other mucous membrane inflammation.

Winters believes, as is now generally admitted, that chorea and acute inflammatory rheumatism are closely allied etiologically and closely allied in their complications, the main complication in both instances being an endocarditis. He interprets the inability of salicylic acid to cure chorea by the hypothesis that the tissue fluids are abnormally acid, which parts, as previously stated, he believes salicylic acid can not reach.

In chorea the heart should be as carefully watched as in rheumatism, and the same care of the diet, and the same rest should be urged.

Winters believes that recurrent tonsillitis and frequent stomach upsets are both caused, in children, by too much animal broths and sweets, and that both are caused by the disturbance of metabolism described above as occurring in rheumatism.

In rheumatism, if the tongue is coated, he advises the free administration of calomel followed by rhubarb and soda, as:

For a child ten years old:

B.	gm.		
Hydrargyri chloridi mitis	10	or	gr. ii
Sodii bicarbonatis	50		gr. x

M. et fac chartulam 1.

Sig.: To be taken at once, with plenty of water or milk. To be followed by:

B.	c.c.		
Misturæ rhei et sodæ	100	or	f℥iii

Sig.: A teaspoonful, with water, three or four times a day, as deemed advisable.

If this preparation should cause too much activity of the bowels the following should be substituted:

B.	gm.		
Bismuthi subnitratis	5	or	gr. lxxv
Sodii bicarbonatis	10		3iiss

M. et fac chartulas 20.

Sig.: A powder every six hours.

He then begins the use of salicylic acid, and states that "a child of ten years may be given .60 gram (10 grains) every two hours for twenty-four hours, and thereafter according to effect."

[For the administration of salicylic acid or some preparation containing salicylic acid see THE JOURNAL, July 25, 1908, page 318.]

As above stated, neither salicylic acid nor any other medicinal treatment will cure rheumatism. The diet is paramount, and Winters urges that "while a vestige of active rheumatism tarries milk must constitute the sole diet." In other words, milk is a purin- (uric acid forming) free diet and contains an abundance of phosphate of potash. All active tonics, alcoholics, manufactured liquid beef preparations, and all home made meat broths prevent the success of the above simple treatment of rheumatism. As there is profuse sweating in this disease the patient should be urged to drink plenty of pure water. As soon as the local evidences of rheumatism have disappeared the diet should be increased in the following manner:

First, cereals may be given, well cooked and served hot with butter and salt or with milk, but without sugar. The cereal may be rice, hominy, cream of wheat, or oatmeal. No malted food, or predigested food, or so-called baby food should be a substitute for one of the above cereal foods, freshly prepared.

The next increase in the diet is the addition of a baked potato and bread, and soon green vegetables may be allowed, excluding, however, beets and sweet potatoes. If tomatoes are craved they may be eaten raw but without vinegar or sugar.

Next, fresh fruits should be added, and these should be taken raw, not cooked. Grapes and grape fruit should not be allowed. Winters states that one ounce of lemon juice contains 3 grams (45 grains) of citric acid, and as citric acid is an antirheumatic, lemon ranks high as a fresh fruit in rheumatic conditions. All these vegetable acids oxidize to carbonates after ingestion. Winters emphasizes his belief that rheumatic patients should not eat sugar until long after complete recovery. When meat is added to the diet it should not be as broths, but in the form of meat, and whether it is red or white meat is indifferent.

Any food or drink that tends to cause intestinal indigestion or fermentation is likely to precipitate a lurking rheumatism. Hence fancy dishes and all sweets, even ice cream, alcohol in any form, and even tea and coffee, if they cause the least indigestion, should be prohibited. Alcohol in any form should generally be permanently eschewed.

A child with chorea should have a diet as rigid as the above advised for rheumatism, depending upon the intensity of the disease. It should also not be allowed at the table that it need not crave the food that it sees provided for the rest of the family. It must be very positively declared that no one shall surreptitiously give a choreic child sweets or sugar in any form. The bowels should be kept in good condition, perhaps best with the above rhubarb and soda mixture. If a stronger laxative is needed it should be administered, and none is better than an occasional dose of castor oil for such a patient. A patient with chorea should be kept at absolute rest and as quiet as possible, if the disease is at all severe, and the calmer the nurse or attendant of the child, and the fewer people or children the child sees, the more rapidly will its chorea abate.

Small doses of bromid of sodium may be necessary to aid in diminishing the muscle restlessness, as:

For a child ten years old:

B.	gm. or c.c.		
Sodii bromidi	10	or	3iii
Aquæ	100		f℥iv

M. et Sig.: A teaspoonful, in water, three times a day, after meals.

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SATURDAY, SEPTEMBER 12, 1908.

THE CALL TO HEALTH.

The important features of the present movement for better sanitary conditions are very ably summed up by Prof. W. T. Sedgwick[1] in the annual address in medicine at Yale University. One or two points deserve special attention, since they are not always included in the popular conception of the work. Professor Sedgwick mentions, as one of the foremost responses of the nineteenth century to the call for better living, the temperance movement which started a century ago and which in its various other aspects has become so familiar to us that we are liable to overlook its sanitary importance. When one considers in detail the relations of alcoholic indulgence to disease, the numerous and important ailments of which it is the direct cause, to say nothing of its indirect influence on human misery and degeneracy, one can hardly avoid realizing that it stands almost, if not altogether, in the first rank of the enemies to be combated in the battle for health.

In the public mind, however, the sanitary bearings of this subject are hardly considered, and it is satisfactory to have them thus emphasized by Professor Sedgwick, whose words we quote as follows: "Under whatever form, and however fanatical or foolish, or at times even harmful, he may have been, the temperance or prohibitionist agitator has always urged the salvation of the body as well as the soul; the conservation of family life threatened with ruin by drunkenness; the social significance and the economic importance of temperance, and even abstinence, as regards alcohol." Any great general movement for sanitary reform which ignores the evils from the use of stimulants and narcotics leaves a vast gap in its line against the common enemy, and whatever may be the practices or prejudices of some of its individual members, the medical profession as a body should stand for temperance as one great essential of public health. That there has been too much neglect of the matter in the past is all the more reason why the profession should do its full duty now and in the future.

Another feature of interest in the address is the announcement of the author's work in connection with Mr. Scott MacNutt verifying the statement of the sanitary engineer, Allen Hazen, that for every death from typhoid fever avoided by the purification of a public water supply two or three deaths from other causes are also avoided. They have found this statement even conservative, and among the other diseases they particularly specify pneumonia, tuberculosis and bronchitis as well as infant mortality. They naturally ask whether this means that these are also water borne, or whether polluted water somehow depresses the vital resistance against the attacks of the micro-organisms of these diseases which the system would otherwise successfully resist, and they are still at work on this problem. A preliminary communication on this subject is contained in the same number of *Science* and the full results of their study with statistical tables, diagrams, etc., and discussion of the subject will be published in the near future.

It is perhaps a little unfortunate that Professor Sedgwick in his opening paragraphs, and to some extent elsewhere in his address, suggests the assumption that the ideal of a better future is in any way hostile to such interest in the present life as is essential to proper care for its preservation. We doubt whether physicians have often made this observation; in fact, to the majority of mankind the belief that this life is the prelude to a better one makes it the more worth living, and it certainly is not so strong in most of mankind as seriously to counteract the natural instinct of self-preservation. We mention this as what we believe to be a medical fact, entirely apart from any special religious significance it may possess. The voluntary quitting of the present stage of existence is certainly not so common among those who are hopeful in this regard as among those who are pessimistic, and the former is certainly a better mental condition in which to meet disease.

1. Science, August 14.

HONESTY IN ADVERTISING.

The underlying principle of the campaign against fraud and misrepresentation in the proprietary medicine business is honesty in advertising. The essential requirement is: "Tell the truth—the whole truth." It would be difficult to formulate a simpler or more reasonable demand, and yet in spite of its simplicity—or is it because of it?—the opposition to the propaganda for reforms in proprietary medicines has been enormous. This has come not only from manufacturers whose methods and products alike were fraudulent—from such, antagonism was expected and desired—but also from firms of high standing who have insisted, to all intents and purposes, that honesty in advertising is Utopian and visionary. The reason for this attitude is not far to seek. The belief expressed not long ago by the *Cumberland Presbyterian*, that "virtually all advertisements are lies"[1] has been very generally held. Commerce has sanctioned "justifiable exaggeration," so long that it is impossible to decide where "justifiable exaggeration" ends and actual lying and fraud begin. Because of the peculiarly vicious results of such a policy in connection with ad-

1. Quoted from Literary Digest, Sept. 21, 1907, 412.

vertisements of medicinal agents the medical profession went at the problem vigorously with the aid of the Council on Pharmacy and Chemistry. About the same time, *Collier's Weekly*, in the Great American Fraud articles, took up the fight for honesty and decency in regard to "patent medicines," and at last the public awoke to the true condition of affairs. This awakening of the public conscience was materialized in the Food and Drugs Act, a law which has indirectly made the advertising of foodstuffs comparatively free from fraud. Manufacturers of worthy products within the province of the act have had their eyes opened to the fact that truthfulness in advertising is a splendid asset and that the unscrupulous manufacturer and the competitor with an inferior product are being eliminated. This having been demonstrated, manufacturers in other commercial lines are beginning to take action for the restoration of commercial morality. Such a policy was foreshadowed in the resolutions adopted by the Associated Advertising Clubs of America last winter, which was referred to at the time.[2] Another notable proof of this awakening is seen in the recent action of the National Association of Piano Dealers. This body has endorsed and distributed an appeal for the prevention of fraudulent advertising in its own domain, in a series of resolutions which are presented elsewhere[3] in this issue.

This action of the piano dealers' association was taken in consequence of a remarkably able address by Lewis H. Clement, at its annual convention recently. In his prefatory remarks, Mr. Clement said:

"A salesman who, through misrepresentation, persuades a customer to buy a thing he does not want, in belief that it is what he does want, deserves dismissal, and a firm which permits such misrepresentation deserves public condemnation. To publish misleading advertisements which not only deceive a large number, but tend to undermine that confidence on which all business rests, is far more discreditable and deserving of condemnation. Dealers insist on honest statements from manufacturers and their representatives. Their customers' rights are no less."

We may now expect other branches of commerce to take action on the subject of fraud and misrepresentation in advertising in their own particular lines. It may thus come about that at no far distant date we shall see commercial morality liberated from the slough of trickery and deceit, and planted on the firm ground of honesty and square dealing.

Meanwhile we may congratulate ourselves on the fact that so far as our own special aspect of this crusade is concerned, the widening circles have passed beyond the confines of this country. We cordially hail our new allies in the world of general commerce, for every step gained by them means the breaking down of so much entrenched resistance to the propaganda for honesty in the promotion of proprietary medicines.

2. THE JOURNAL A. M. A., Feb. 29, 1908, p. 703.
3. Miscellany Department, Page 932.

PHYSICIANS AND MEDICINE AND MEDICAL TEACHING.

The comic papers delight in making the medical profession and medicine the butt of ridicule. For legitimate criticism and the humor that is inevitable in all things human, there can be no resentment. Many of the expressions used with regard to the profession, in the light of what it has accomplished for public health and modern philanthropy, are so ungenerous, however, as to be rather painful reading. The writers of no nation have been more free with the pen in this matter than have the French, and though Gallic humor and French wit assume the license to play around everything in life, no matter how serious, with a bitingness unexampled elsewhere, it is evident that the aspersions on the medical profession have not been without resentment, even in France. In the *Revue des Deux Mondes* (June 1) Professor Charles Richet has an article on *La Médecine, les Médecins et les Facultés de Médecine*, in which, while admitting that the medical profession can not hope to escape criticism in a time of universal criticism, he replies to certain aspersions which are unfounded.

He states forcefully the objections that are made against modern scientific medicine, its impotence in the face of cancer, its inability to stop the progress of infectious disease once it has taken hold, its utter failure with regard to the serious diseases of the heart and the liver and the internal organs generally, its inability to do away with infant mortality, that while there has been boasted progress in nervous diseases, this has been entirely in the line of diagnosis and not of treatment. He admits that there is not a little justice in the objection that many diseases develop in just the same way, whether under the care of a skillful therapeutist or left practically untreated. Patients who are going to recover do so. Above all, he admits the justice in the criticisms with regard to the vogue which certain new remedies gain without due reason. As the French comic papers sometimes put it, when a new remedy is in the hands of the medical profession: "Hurry and take it while it still cures, for soon it will be found to be of no value."

Professor Richet admits that many of these criticisms have a certain basis of truth, but declares that their bitterness is entirely uncalled for. In terms very nearly the equivalent of a striking expression frequently quoted that: "Life is a dangerous thing at best, and very few of us get out of it alive," he says that death is in the world and physicians are not expected, even by those who have the most implicit confidence in them, to stay its progress. The rôle of the physician, he continues, has been admirably defined: "He cures sometimes, he relieves nearly always, he always consoles." Even if he can not cure the unfortunate victim of cancer of the stomach, the physician can bring him so much relief, he can render digestion so much less painful, he

can make the nights so much less cruel, he can save him so much agony, that the patient comes to consider him as almost superhuman in his power for good, and though the disease will not be cured, the rôle of the physician is one of the most beautiful and most efficient in the whole sphere of human action.

Professor Richet points out how, in spite of the many uncertainties that are left in medicine, medical science has so developed in the last two or three generations, that the practice of medicine is more exact than it was a half-century ago, and is daily becoming more so. "Patients still talk of the many different diagnoses of the same trouble that they receive from physicians, but that is because not a few of the physicians to whom they go have not been thoroughly trained. In the ordinary hospital examination for interneship, the young physician applicant is asked to examine a patient, and usually the case picked out will not be very simple, yet, in more than nine times out of every ten there will be perfect agreement among the group of hospital physicians as to what the malady is, and as a rule the young physician will make the diagnosis correctly."

Even in maladies in which a physician can do little to prevent them from running their course, his presence and the knowledge that he is watching to avert complications, give reassurance and mean so much to the patient that it does more to increase that vital resistance by which disease is thrown off than anything else that could be done for him. "It is not the fault of medicine if Nature cures certain diseases, and, on the other hand, it is not the fault of medicine if it can not cure all diseases." The human machine tends to wear out, and cure would in many cases mean the re-creation of special parts for it. Medicine can not cure in these cases, but while it is without resources to circumvent death, it is all powerful in the remedies that it has to prevent pain. The saddest thing in human history is the amount of pain that men formerly had to undergo without any possibility of relief. Now there is scarcely any pain that can not be relieved in a comparatively short time.

While the humorists still continue to urge certain objections against medicine, they are mainly exposing their own ignorance as to recent developments and are doing harm just to the extent that they foster a lack of popular confidence in physicians. It is only the healthy who make fun of the physicians. Even the bitterest critic calls a physician when he is ill, and those who have had most to do with physicians because they have been ailing for long years, not only have the most confidence in them, but come to look on them as benefactors of mankind.

There are many other well-put answers to criticisms of present-day medicine in Richet's rather lengthy article, and those who read French will find an entertaining hour in perusing it. There is scarcely a criticism of modern medicine that does not find a judicious discussion here, from the use of placebos—for Professor Richet believes in the old proverb, "Better a doubtful remedy than none, provided always the remedy does no harm"—to the most recent position taken by physicians in France with regard to alcohol.

THE U. S. PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE PERSONNEL BILL.

The problem of establishing a national department of public health is one that will require careful consideration and possibly much time. While awaiting its solution, there is another matter that should have immediate attention. The salaries of the officers of the U. S. Public Health and Marine-Hospital Service were fixed originally at the same figures as those of the medical officers of corresponding rank in the army and navy. But recently bills were passed by congress raising the salaries of officers in the medical departments of the army and navy. A similar bill correspondingly raising the salaries of officers in the U. S. Public Health and Marine-Hospital Service was introduced and passed the senate; it did not, however, pass the house before adjournment. The men in this department, in the piping times of peace, are doing a work no less arduous than do the medical officers of the fighting service of our government in time of war. Many of them are constantly on the firing line, and no small number of them have lost their lives in fighting epidemics. On many occasions they have demonstrated that their service is invaluable to the United States and to each one of its component parts. Even with the increase in pay granted under the bill mentioned, these medical officers will be none too liberally paid, and to make them drag out perhaps years of further work at the present inadequate compensation, while we are waiting for a proper solution of the public health question, would be unfair and unjust. Small and but partly developed as this service is, we owe much to it for the hard, conscientious work which already has been done by its officers. To place them on the same salary footing as the medical officers of the army and navy would seem to be the least that ought to be done at the present time; and it should be done at once.

WHOLESALE PROPHYLAXIS.

To combat the caterpillar plague, which was having a disastrous effect on the forests of Saxony, search lights were thrown on the wooded mountain sides half a mile distant. The light attracted the caterpillar moths within the range of exhaust fans, which on one night captured three tons of these lepidopters.[1] It may seem visionary to suggest some such wholesale method of eliminating the cause of epidemics among human beings. While the removal of typhoid germs, for instance, from large bodies of water may be beyond man's inventive skill, yet that it is well within his power to prevent the initial pollution of the water is evidenced by modern scientific methods of sewage disposal. While malaria, too, is still a disease to be reckoned with, yet in certain districts the destruction of *Anopheles* by put-

1. Quoted from the Scientific American, Aug. 29, 1908, p. 158.

ting petroleum on stagnant water has practically abolished the *Plasmodium malariæ*. The description of Saxony's method of dealing with the caterpillar plague reads somewhat Münchausenesque, yet to the people of a third of a century ago some of the methods of modern medical science in disease prophylaxis would have seemed no less far-fetched and sensational.

Medical News

CALIFORNIA.

Physician Sent to Penitentiary.—In the case of Dr. Ralph A. Huntington, Fruitvale, said to have been convicted of manslaughter in 1900 for death following the performance of a criminal operation, and who was granted a new trial, the Appellate Court on August 13 decided that he must serve a term of imprisonment of four years in the state penitentiary, at San Quentin.

New Societies.—An antituberculosis society has been formed in Oakland with Drs. Albert H. Pratt, J. Radford Fearn, Arthur L. Cunningham, Dudley B. Channell, and Nelson H. Chamberlain on the board of directors.——Physicians of southern California met at Venice, August 8, and organized the Municipal Health Association of Southern California. Dr. W. H. Parker, Ocean Park, was elected president; and Dr. William S. Smith, Santa Monica, secretary; and Dr. Lyman H. Case, Santa Monica, committee on public health.

Hospital Notes.—Work has commenced on the addition to the Red Cross Hospital San Mateo, donated by Mrs. Whitelaw Reid.——The plans for the new Marine View Hospital, Eureka, to be erected by Drs. Charles C. and Curtis O. Falk, are completed and construction will be commenced at once. The hospital, when completed, will represent an outlay of $35,000.——A corporation has been capitalized at Palo Alto to erect a large private hospital to contain from 20 to 25 patients, at a cost of $40,000.——Property has been secured in Bakersfield for the new hospital to be conducted by the Sisters of Mercy. The buildings at present on the property will be remodeled at a cost of $2,500 for temporary use, pending the erection of a new building.——The University of California has been donated $100,000, the balance of the San Francisco relief fund contributed by Massachusetts for the establishment of a free ward in the University of California Hospital to be known as the Massachusetts Ward.

DISTRICT OF COLUMBIA.

Fire in Hospital.—A slight fire occurred at St. Elizabeth's, the government hospital for the insane, August 11, which was extinguished by prompt action of the fire brigade before the arrival of the fire department of the city.

Personal.—Isaac Phelps, for many years instructor at Yale, has been appointed instructor in physiology in the Medical Department of George Washington University.——Dr. Murray G. Motter, deputy health officer and chief inspector of the district, has resigned to accept a position in the Public Health and Marine-Hospital Service. Dr. Henry F. Sawtelle has succeeded Dr. Motter.

Health Report.—According to the report of health and mortality for the week ended August 22, there were 76 deaths, 42 of the decedents being white and 34 colored. There were 133 births registered, of which 99 were white. Typhoid fever showed a slight increase as compared with the preceding week, as 44 new cases were reported, bringing the total number of cases on hand to 182, with 3 deaths.

ILLINOIS.

Chicago.

Gift to Library.—Drs. Emanuel J. and William N. Senn have presented to the John Crerar Library more than 2,000 volumes from the library of the late Dr. Nicholas Senn, to be added to the Senn collection.

Personal. Dr. and Mrs. Philip S. Doane expect to sail from Europe October 17.——It is announced that Dr. Antonio Lagorio, who was recently infected with rabies, is out of danger.——Dr. George E. Fosberg and family have returned from Europe.

In Many Languages.—The health department on August 31 begun issuing its bulletin on "Hot-Weather Care of Infants" in Lithuanian. The bulletin had previously been published in English, Polish, Bohemian, German, Italian, Swedish and Yiddish.

Henrotin Bath Dedicated.—The first public bath to be located in the Twenty-fourth ward, and named in honor of the late Dr. Fernand Henrotin, was formally dedicated September 1. The bath house has 20 shower baths and is located at Ashland and Fullerton avenues.

School Inspection.—Beginning September 8, each school medical director will make a daily visit to each school assigned him. At the first visit the inspector will make a rapid inspection of all pupils to determine if any seeking admission bear evidence of contagious disease. More detailed inspections will be made later.

August Mortality.—There were 348 more deaths in August than in July, and 132 fewer deaths in August than in the corresponding month of last year. The deaths from all causes were 2,690, of which acute intestinal diseases caused 815; consumption, 288; heart disease, 198; violence (including suicide), 194; nephritis, 157; cancer, 124; and pneumonia, 120.

Contagious Diseases.—To the total of 324 cases of contagious diseases reported during the week ended September 5 diphtheria contributed 61; scarlet fever, 69; measles, 11; whooping cough, 12; typhoid fever, 126; and tuberculosis, 31. All diseases were fewer in number excepting scarlet fever and typhoid fever, the former increasing 32 and the latter 79.

Weekly Deaths.—The mortality during the week ended September 5 was 553, or 31 less than for the preceding week, and 21 less than for the corresponding week of 1907. There was a reduction of 38 from diarrheal diseases; 19 from consumption, and 4 from typhoid fever. The deaths from diphtheria increased 3; from pneumonia, 10; and from whooping cough, 3, as compared with the preceding week. Acute intestinal diseases caused 138 deaths; tuberculosis, 46; violence (including suicide), 42; nephritis, 39; heart disease, 38; pneumonia, 35; and cancer, 32.

KENTUCKY.

Society Meetings.—The Knott County Medical Association was organized at Hindman, June 26. The following officers were elected: President, Dr. John W. Duke, Hindman; vice-president, Dr. Owen Pigman, Mallie; secretary, Dr. Montford F. Kelly, Hindman; and treasurer, Dr. Richard W. Duke, Hindman.——The Owensboro Medical Society at its annual meeting elected the following officers: President, Dr. Charles H. Todd; vice-president, Dr. Otway W. Rash; secretary, Dr. George L. Barr; and member of board, Dr. John J. Rodman.

Personal.—Dr. Joel Ross, Fort Thomas, has returned after seven years spent as medical missionary in Corea.——The home of Dr. J. P. Brashear, Middleboro, was destroyed by fire August 19, he and his family barely escaping with their lives.——Dr. William L. Nuttall, Newcastle, has been appointed superintendent of the Kentucky Institute for Feeble-Minded Children, Frankfort.——Dr. Frank H. Clarke, Lexington, has returned from Europe.——The office of Dr. Frank P. Strickler, Elizabethtown, was damaged by fire August 20, to the extent of about $700.——Drs. Virgil F. Barker and Joseph Gower have been elected members of the Newport board of health.——Dr. James A. Averdick, Covington, is seriously ill with septicemia.——Dr. Samuel T. Botts, Glasgow, who has been seriously ill, is reported to be improving.

MARYLAND.

Typhoid Fever.—Typhoid fever is reported at Arundel-on-the-Bay, near Annapolis. Several cases are said to have been taken from there to Washington. The source of the epidemic has not yet been ascertained.

Test Case.—Dr. Benjamin R. Davidson, Davidsonville, register of wills of Anne Arundel County, was arrested September 1 for violating the new law which imposes a wheel tax on owners of vehicles using the county roads. Dr. Davidson, like many other residents of the county, holds that the law is unconstitutional, and will make this a test case.

Baltimore.

Personal.—Dr. H. J. Giering is in Paris.——Dr. William D. Booker has returned from abroad much improved in health.——Dr. James M. Carter, while suffering with despondency due to ill health, is said to have attempted suicide with a pistol, August 28.

Delay in Opening Hospital.—The Sydenham Hospital for Infectious Diseases will not be opened for six or eight weeks, owing to the necessity of having an administration building. The commission tried to avoid providing this building, hoping to be able to use some rooms in the hospital for physicians, nurses and employés, but this was found to be impracticable.

Arrest for Illegal Practice.—During the last week two arrests were made for illegal practice of medicine. One was a negro woman who prescribed herb medicine for a policeman, and was committed pending the action of the criminal court; the second case was a man calling himself "Dr." Joseph W. Reynolds, who also prescribed for a patrolman and claimed to have a certificate at his home in Cecil County.

Tuberculosis in Factories.—The governor's plans for dealing with tuberculosis in factories in the state, through inspectors who superintend the conditions in which the employés work, and are on the lookout for cases of tuberculosis, meets with very great favor, both among factory owners and the medical profession. It has been suggested that appointments of inspectors be made by the State Board of Health.

MASSACHUSETTS.

No Trace of Plague.—The port physician and health commissioner of Boston have released the Portuguese immigrants who were thought to have been exposed to bubonic plague, and quarantined at Gallup's Island, as the period of incubation has safely passed.

Personal.—Dr. Herbert L. Burrell, Boston, president of the American Medical Association, sailed September 8 to attend the International Congress of Surgery, to be held at Brussels. ——Dr. H. A. Christian has been appointed Hersey professor of theory and practice of medicine in the Harvard Medical School.——Dr. Frank B. Gallivan, chemist of the Boston milk laboratory, has resigned.

Ether Day.—The trustees of the Massachusetts General Hospital have issued invitations to attend the exercises at that institution of the sixty-second anniversary of Ether Day, October 16. Demonstrations and operations are to be made at the hospital from 11 a. m. to 1 p. m., when luncheon will be served; the exercises of Ether Day, presentation of diplomas and the annual address by Dr. William H. Welch, Baltimore, will be held at 3:30, and the dinner of the Hospital Alumni Association will occur at 8 o'clock.

Woman's Medical Society.—The Woman's State Medical Society of Massachusetts has been formed with the purposes of bringing medical women of the state into communication with each other for their mutual advantage, of extending medical knowledge, of advancing medical science, and encouraging social and harmonious relations within the profession. The requirements for active membership are that applicants must be graduates in medicine, in good professional standing, and members of the Massachusetts Medical Society. Associate members consist of women graduates in medicine from recognized medical colleges, who have the privilege of becoming active members as soon as they meet the requirement of membership in the state society.

NEW JERSEY.

Hospital Notes.—The bids for the erection of the new hospital at the almshouse at New Lisbon have been received. The lowest bid was $7,966 for the building and $1,690 for plumbing and heating.——Dr. L. F. Hatch, Vineland, has erected a hospital in that city which has cost more than $18,000 and is to be free to all emergency cases.

Personal.—Drs. Edward Whalen, James Trotter and Leo Koppel, internes in the Jersey City Hospital, are taking the Pasteur treatment.——Dr. Edward D. Bradin, Newark, who was recently stricken with cerebral hemorrhage, is reported to be improving.——Dr. James H. Curts, Paterson, who was injured in an automobile accident at Bogota, August 2, has been removed to St. Joseph's Hospital, Paterson, and is improving slowly.——Dr. Frank P. McKinstry has been elected president of the Washington board of health.

SOUTH CAROLINA.

Personal.—Dr. Robert Wilson, Charleston, has been elected dean of the Medical College of the State of South Carolina, Charleston, vice Dr. Allard Memminger, resigned; Dr. Lane Mullaly, has been elected vice-dean and registrar; and A. Johnston Buist, secretary and treasurer.——Dr. James M. Johnson, Newberry, has been made instructor in medicine in the clinical laboratory of Johns Hopkins University, Baltimore.

NEW YORK.

Personal.—Dr. Frederick E. Lettice, Schenectady, has been appointed physician to the state prison, Ossining, vice Dr. Robert T. Irwine, resigned.——Drs. John A. Stapleton and Philip Conboy, Rochester, have sailed for Europe.——Dr. Edward A. Dean has been elected health officer of Seneca, vice Dr. Edward H. Ballou, Gardenville, deceased.

Buffalo.

University to Open.—The medical department of the University of Buffalo will open for its sixty-third annual session September 28. Dr. Julius Ullman will deliver the annual address.

Hospital Notes.—Work is progressing on the new United States Marine Hospital, which is to cost $125,000.——The work of the day tuberculosis camp has been in progress for 66 days and is exceptionally gratifying, as 40 patients have taken treatment each day.——A determined effort is being made for the erection in Buffalo of a suitable municipal isolation hospital.

New York City.

Millions to Charity.—By the will of Frederick Hewitt, Owego, $2,000,000 is bequeathed to the New York Post Graduate School and Hospital.——The Lying-in Hospital of Manhattan has been bequeathed a portion of the residuary estate of the late William B. Leeds.

New Home for Dispensary.—Plans have been filed for a new building for the New York Dispensary on Worth Street. The new edifice is to cost $25,000 and will be built in Italian renaissance style. The building will contain a diet kitchen, drug store, dentist's office, small isolation wards, and a ward for tuberculous patients.

Bellevue Wants Larger Allowance.—The annual budget of Bellevue and Allied Hospitals asks for $1,197,861, which is an increase of $271,679 over last year. The principal reason for this increase is the completion of the new pavilions which will accommodate 396 patients, and it is expected that they will be fully occupied during the coming year.

Remodel Vanderbilt Clinic.—The Vanderbilt Clinic of the College of Physicians and Surgeons is to be remodeled at a cost of $20,000. Among improvements to be made are the obtaining of room for setting up mechanico-therapeutic apparatus for the therapeutic department and enlargement of the laboratory of chemical pathology. By agreement of the New York County branch of the Red Cross, the Vanderbilt Clinic announces that a day camp for tuberculosis patients will soon be opened on the roof of that building. The Red Cross will provide the funds necessary for the maintenance of the camp. The executive work will be largely in the hands of the woman's auxiliary committee of the clinic.

Personal.—Dr. Carl Beck has returned from Europe.——Dr. Eugene B. Sanborn, Borough of Richmond, deputy health officer of the port of New York for 30 years, has retired, and will live henceforth at his farm near Machias, Maine.——Dr. Smith Ely Jelliffe sustained serious bruises in an automobile accident near Liberty, N. Y., August 4.——Dr. Mary Crawford, ambulance surgeon, was attacked and beaten by an insane patient in an ambulance, August 19, and on September 6 had an encounter with a second insane individual, whom she subdued. ——Dr. Lawrence Aiken, ambulance surgeon in the Long Island Hospital, was thrown from the ambulance, in a collision with an electric car, August 27, breaking his right arm.

What the Health Department Costs.—The annual budget of the board of health calls for large increases in appropriations. The hospitals under the jurisdiction of the department especially urge large appropriations: Willard Parker Hospital, which has been receiving $215,012, wants $282,940; the Riverside Hospital wants $269,105 instead of $209,068; the Kingston Avenue Hospital in Brooklyn, where scarlet fever is treated, has asked for $302,110, which is an increase of $120,000. The United States government sends immigrants suffering from contagious diseases to this institution and pays $75,000 annually for the privilege. There is a demand for an increase in school and district inspectors. Manhattan has at present 226 inspectors and needs 295; also 93 nurses instead of 45 as at present. The department asks for $2,269,722 for salaries. The total asked for is $3,416,519 for the year 1909.

WASHINGTON.

Epidemic Diseases.—The Tatoosh epidemic of diphtheria is now under control. Only one death has resulted so far.—— Six cases of diphtheria and one case of scarlet fever were reported from the Catholic Orphanage, Seattle, August 20.

To Avert Oriental Diseases.—Dr. Spiro Sargentitch, health officer of Tacoma, has sent an invitation to the health officers of the Puget Sound and Pacific cities to hold a meeting in Tacoma to consider means to prevent the spread of bubonic plague and other oriental diseases.

Personal.—Dr. Mary McMillan has resigned as house physician at the Deaconess' Hospital, Spokane, and has been succeeded by Dr. Bandy. Wilbur.——Dr. M. M. Hull has returned after a year in Europe and opened an office at Green Lake.——Dr. Albert L. McClanahan, Seattle, is said to have been fined $20 August 6, for alleged failure to report a case of diphtheria to the municipal health officer.

Health Report.—The health report of Seattle for July shows that there were 341 births and 146 deaths registered during the month. Among the chief causes of death were: Diseases of the circulatory system, 21; accidents, 17; diseases of the digestive system and tuberculosis, each 14; diseases of early infancy, 13; diseases of the nervous and genitourinary systems, each 12; suicide, 10; cancer, 6; diphtheria, pneumonia and puerperal diseases, each 3; and typhoid fever, 2. The following contagious diseases were reported during the month: Diphtheria, 39; scarlet fever, 32; typhoid fever, 25; smallpox, 16; and measles, 7.

GENERAL.

Personal.—Drs. William A. White, Washington, D. C., and Smith Ely Jelliffe, New York City, have been appointed delegates to represent the United States at the Third International Conference for the Care of the Insane, to be held in Vienna, October 7 to 11.

Health in Cuba.—The sanitary department in Cuba will maintain rigid quarantine against Mexican ports until yellow fever is officially declared extinct. All persons arriving in Havana from these ports are detained in camp to complete the incubation period, and passengers in transit are forbidden shore liberty.——At Daiquiri only one case of yellow fever and that of mild type, was reported during the week ended August 15.

Yellow Fever in Cuba.—Dr. Carlos J. Finlay, chief sanitary officer of Cuba, in circular No. 50, issued July 27, details the cases of yellow fever which have occurred since April 1, the beginning of the present epidemic year. In all 15 cases were reported, 2 of which were in Santiago and 13 in Daiquiri. Of these patients 3 died and 12 recovered. He gives out the last occurrence of yellow fever by provinces as follows: In Pinar del Rio, 1900; Havana City, Jan. 31, 1908; Havana province, Jan. 10, 1908; Matanzas province, Dec. 24, 1907; Santa Clara province, Feb. 18, 1908; Camaguey province, Nov. 12, 1907; and Oriente province, July 9, 1908.

Health of the Canal Zone.—The report of Col. William C. Gorgas, U. S. A., chief sanitary officer Canal Zone, for June, shows a reduction in the death rate for white employés for the month as compared with the rate of 1907 of 1.21 per cent.; among colored employés for the same period, a reduction of 20.50 per cent., equivalent to a reduction in the death rate of all employés of 15.18 per cent. Out of the total of 47 deaths during the month 21 were due to accidental violence; 5 were due to malaria, as compared with 8 in the corresponding period of last year; 2 to typhoid fever, as compared with 8 in June, 1907, and 5 from pneumonia, as compared with 30 during the corresponding period of last year, showing a definite improvement along all lines. Of the 4 deaths which occurred among whites from the United States, 3 were from external violence and one from organic heart disease. The first 2 deaths on the Isthmus from hydrophobia occurred in June. There was no quarantinable disease of any kind during the month.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

As we have previously noted, the work of the Congress is divided into two parts: the tuberculosis exhibit and the section work. Both the exhibition and the Congress will be held in the new National Museum at Tenth and B Streets, Washington, D. C. The exhibit continues during the entire three weeks, but the section work is limited to the second week, September 28 to October 3. The work of this week will be inaugurated in a general meeting to be held September 28 at 11 a. m., at which it is expected that Secretary Cortelyou will preside. At this meeting there will be no speaking except by the representatives of governments, twenty-four independent governments being represented. The work of the congress is carried on in seven sections. Each section will hold two sessions daily, excepting on the days when the general meetings are held. The opening session of the sections occurs Monday, Sept. 28, at 2:30 p. m. The general meetings will be held in Assembly Hall of the New National Museum. The section meetings will be held in rooms on the second floor of the same building. The first floor will be occupied by the Tuberculosis Exhibition. The program of the Orthopedic Section was published in THE JOURNAL, August 22.

Section Officers.

The following are the presiding officers of the various sections:

Section 1: Pathology and Bacteriology.—President, Dr. William H. Welch, Baltimore; secretaries, Dr. Harold C. Ernst, Boston, and Dr. William Royal Stokes, Baltimore.

Section 2: Clinical Study and Therapy of Tuberculosis.—President, Dr. Vincent Y. Bowditch, Boston; secretaries, Dr. Edwin A. Locke, Boston; Dr. W. Jarvis Barlow, Los Angeles, and Dr. Guinard, Bligny, France.

Section 3: Surgery and Orthopedics.—President, Dr. Charles H. Mayo, Rochester, Minn.; secretaries, Dr. William D. Haggard, Nashville, Tenn., and Dr. John T. Bottomley, Boston.

Section 4: Tuberculosis in Children.—President, Dr. Abraham Jacobi, New York; secretaries, Dr. David Bavaird, Jr., New York, and Dr. F. S. Churchill, Chicago.

Section 5: Hygienic, Social and Economic Aspects.—President, Mr. Edward T. Devine, New York; secretaries, Mr. Alexander M. Wilson, Chicago, and Miss Lilian Brandt, New York.

Section 6: State and Municipal Control.—President, Surgeon-General Walter Wyman, Washington, D. C.; secretary, Dr. J. W. Kerr, Washington.

Section 7: Animal Tuberculosis.—President, Dr. Leonard Pearson, Philadelphia; secretary, Dr. John R. Mohler, Washington, D. C.

Public Lectures and Meetings.

On Friday afternoon, September 25, at 2:30, President Roosevelt will receive the delegates in the East Room, at the White House. On the evening of Monday, September 28, from 8:30 to 11 o'clock, there will be a reception in the Corcoran Art Gallery. During the two weeks, September 28 to October 9, there will be public lectures as noted in THE JOURNAL, August 29, 1908, p. 769.

Abstracts of Papers.

Abstracts of the papers to be read will be prepared for distribution on the day on which they are to be read and the full text of the papers, together with special lectures, the discussions, and an account of the chief features of the exhibition will be published in the Transactions of the Congress, which will comprise four volumes of moderate size and will be furnished free to members of the Congress.

Additional Papers to Be Read in Section 1.

A partial list of the papers in this Section was published in THE JOURNAL, Aug. 29, 1908, p. 769. The following are to be added:

The Ophthalmic Reaction. Dr. Fernand Arloing, Lyons, France.

Concerning Latent Tuberculosis. Prof. Francis Harbitz, Christiania, Norway.

The Predispositon of the Lung Apices and the Rules for Locating the First Disease Centers. Dr. Carl Hart, Berlin, Germany.

The Opsonic Index in Certain Tuberculous Infections. Dr. T. W. Hastings, New York.

The Opsonic Index in Early Diagnosis. Dr. George P. Sanborn, Boston.

Studies of the Opsonic Index. Drs. H. M. Kinghorn and D. C. Twichell, Saranac Lake, New York.

The Cutaneous Tuberculin Reaction. Dr. Clemens von Pirquet, Vienna, Austria.

Cutaneous and Conjunctival Reaction. Dr. A. Wolff-Eisner, Berlin.

Cutaneous and Conjunctival Reaction. Dr. Arnold C. Klebs, Chicago.

The Present Status of Serum Diagnosis. Dr. Paul Courmont, Lyons, France.

Flies as Agents in the Dissemination of Koch's Bacillus. Dr. C. André, Lyons, France.

The Possibilities of Infection from Table Utensils at Sanatoria. Dr. J. Woods Price, Saranac Lake, N. Y.

The Relations of Human and Animal Tuberculosis, with Special Reference to the Question of the Transformation of Human and Other Types of Tubercle Bacillus. Prof. Theobald Smith, Boston.

Human and Bovine Tuberculosis and the Tubercle Bacillus. Prof. J. Fibiger and Prof. C. O. Jensen, Copenhagen, Denmark.

The Susceptibility of Cattle to the Virus of Surgical Forms of Human Tuberculosis. Dr. R. M. Dinwiddie, Experiment Station, Arkansas.

Tuberculous Cervical Adenitis. A Study of the Tubercle Bacilli Cultivated from Fifteen Consecutive Cases. Dr. P. A. Lewis, Boston.

The Problem of Immunity in Tuberculosis. Dr. Edward R. Baldwin, Saranac Lake, New York.

Immunization Against Tuberculosis. Prof. A. Calmette and Dr. C. Guerin, Lille, France.

Immunity Production by Inoculation of Increasing Numbers of Bacteria Beginning with One Living Organism. Drs. Gerald B. Webb and W. W. Williams, Colorado Springs, and Prof. M. A. Barber, University of Kansas.

Considerations Concerning Lesions of Tuberculosis. Prof. William T. Councilman, Boston.

The Pathology of Hemorrhage in Incipient Tuberculosis. Prof. J. Pahrot, Lyons, France.

The Distribution of Tuberculous Lesions in Infants and Young Children. A Study Based on Postmortem Examinations. (To be read in Section IV). Dr. Martha Wollstein, New York.

The Frequency of Tuberculosis in Childhood. (To be read in Section IV). Dr. C. von Pirquet, Vienna, Austria.

Papers, titles not given, will be read by Drs. B. Stiller, Budapest, Hungary; Simon T. von Unterberger, St. Petersburg, Russia; Johann von Szaboky, Budapest, Gleichenberg; N. Jancso and A. Elfer, Klausenburg, Hungary; Ladislaus Detre, Budapest, Hungary; Isidora Spitzstein, Budapest, and J. Hericourt, Paris; S. Matejin, Budapest; S. Arloing, Lyon, France; M. P. Ravenel, Madison, Wis.; Lydia Rabinowitsch Kempner, Berlin; A. Calmette, Lille, France; Fernand Bezancon and S. I. de Jong, Paris, and Prof. G. Nicolas, Lyons; Josef Kertesz, Budapest; R. Lepine, Lyons; E. Bulnet, Marseilles, France.

FOREIGN.

Personal.—Dr. Emil Kraepelin, professor of psychiatry in Munich, who has been visiting the Yellowstone Park and the Yosemite, has sailed for Europe.——Dr. William Osler, Oxford University, has been made lord rector of Edinburgh University.

Progress on the Mecca Railroad.—The Hedjaz Railroad is finished to Medina, where the first train arrived August 22. It is feared that the completion of this road will throw wide the gates for the invasion of Europe by oriental epidemics. International prophylaxis is being remodeled to cope with this new aspect of the Mecca pilgrimages.

Four-Hundred-Year-Old Drug Store in Copenhagen.—The apothecary shop "at the Sign of the Swan" is approaching the four hundredth anniversary of its foundation. Two other drug stores in Copenhagen have recently commemorated their two hundredth and two hundred and fiftieth anniversaries by the publication, by each, of an illustrated souvenir pamphlet. They review the history of pharmacy in Denmark, with many sidelights on the history of medicine and of the medical profession.

Death of Becquerel.—Henry Becquerel was professor of physics and applied physics at Paris, and has made notable contributions to science besides his discovery of the rays from uranium salts which have made his name famous. He held honorary degrees from four British and one German university, and was a member of the scientific academies of Rome, Berlin and Washington. Besides the Rumford, Burnard and Helmholtz medals, he shared the Nobel prize for physics in 1903 with the Curies. At his death, August 25, he was 57 years old.

Investigation of Alleged "Miracle Cures."—The pilgrimages to Lourdes are attracting more and more persons from Germany every year, and the Germans look with much disfavor on this "wasting of Teutonic savings on French soil." A Munich society, the *Monistenbund*, has appealed to physicians to investigate the after-history of cases in which miraculous cures are alleged to have been realized. The appeal is signed by two Munich physicians, one of whom is treating for severe lupus a woman whose "miraculous cure" of the lupus is chronicled in Boissarie's book as one of the great miracles at Lourdes.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, Aug. 29, 1908.

Record Decrease in the Death Rate.

The quarter ending June last showed the lowest death rate recorded in any second quarter since civil registration was established. The deaths registered in England and Wales were at the rate of 13.8 per 1,000 of the population, which is 1.8 per 1,000 below the mean rate for the corresponding quarters of the last ten years. The lowest rates were in the counties of Middlesex (10.8), Essex (11), and Kent (11.2). The three Welsh counties, Glamorganishire, Denbighshire and Carmarthenshire, showed the highest rates, which were 15.7, 15.7 and 18.9 respectively. In the 76 cities with populations exceeding 50,000 there was a marked decrease in the mortality. The rate was 13.7, as against 14.7, 14.8 and 14.9 in the three preceding corresponding quarters. The same holds true of the 142 smaller towns, with populations ranging between 20,000 and 50,000. The rate was 12.9, as against 13.6, 13.4 and 14 in the three preceding corresponding quarters. The birth rate for the quarter shows a decrease of 1 per 1,000 as compared with the average for the preceding ten years.

The Danger from Illness of Locomotive Engineers.

In the London Letter of May 30 there was recorded the death of an engineer on the footplate of an express train a few minutes after leaving Newcastle. This occurrence drew attention to the necessity of medical supervision of men engaged in this work. Another warning of a still more striking character has now been given. The escape from great loss of life was most remarkable. A market train, crowded with passengers, was about a mile from Nottingham when the driver, who had only just resumed work after a period of sick leave, was suddenly seized with paralysis and fell on the footplate. For a few minutes the fireman was so concerned for the engineer's safety that the engine was left uncontrolled, traveling at an increasing speed. At Radford the train was signaled to stop, but it dashed through the station at a high speed, alarming the officials and the passengers. The signals had been set against the train, so that an express train to London might pass. As the driver failed to stop the signalman, realizing that disaster was imminent, promptly switched the runaway train on to a branch line. He was only just in time. The train had barely cleared the main line when the express dashed past. By this time the fireman had taken command of the engine and brought the train to a standstill. The driver was found lying helpless and speechless on the footplate. In this connection the Shrewsbury disaster, which occurred in the early hours of Oct. 15, 1907, may be recalled. A train ran with a high rate of speed on a curve near Shrewsbury and consequently left the rails. Eighteen persons were killed and many others were seriously injured. An exhaustive government inquiry failed to show why the engineer (who was killed) did not, as usual, reduce speed on approaching the curve. In cross-examination the locomotive foreman admitted that he had to certify that the engineer was in good health and that the latter had not been medically examined since admission to the service, about forty years ago. The most reasonable hypothesis is that the man was taken suddenly ill. Another danger—that of defective eyesight—in locomotive engineers has recently been called attention to by Mr. A. R. Galloway, surgeon to the Aberdeen Eye Institution. He reported two cases which had come under his observation in the last few months. A locomotive engineer came to the Eye Institution who, three years before, had passed the engineer's examination which was conducted by a lay inspector and thereafter by the superintendent. The engineer had noticed that his sight was defective for ten years and it had been getting worse. Examination showed compound myopic astigmatism. In the other case there was hypermetropia of two diopters.

Diphtheria Mortality and Antitoxin.

The annual report of the metropolitan asylums board for 1907, which has just been published, supplies further testimony of the value of antitoxin in diphtheria. In the quinquennial period, 1887-91, the death rate in the cases admitted to the board's hospitals was 33.6 per cent., and in 1893, the year before the introduction of antitoxin, 30.1 per cent. During 1907 it was 9.6 per cent., and during the quinquennium 1902-06, 9.3 per cent. The significance of these figures is accentuated by those of the Brook Hospital, at which a record has been kept of the mortality according to the day of the disease on which the antitoxin was given. During the years 1897-1907, 6,556 cases were treated. Of these 250 patients received an injection of antitoxin on the first day of the disease without a single death; 1,513 received the injection on the second day, with a mortality of 4.3 per cent.; 1,690 received the antitoxin on the third day, with a mortality of 11.2 per cent.; 1,338 were injected on the fourth day, with a mortality of 16.9 per cent., while 1,765 received antitoxin on the fifth day, with a mortality of 18.6 per cent.

Legal Questions Under the Workmen's Compensation Acts.

The workmen's compensation act is constantly giving rise to difficult legal questions. Recently the liability of an employer for death due to granular kidney in a man who had previously suffered from lead poisoning was contested. The act provides that "lead poisoning or its sequelæ" is a form of industrial disease for the results of which compensation is to be allowed. In the lower court the county court judge found: 1. That the immediate cause of death was granular kidney; 2. that granular kidney is a sequela of lead poisoning, but is also a sequela of gout, alcoholism, heart disease and other complaints; and, 3. that lead poisoning was not proved to be the cause of granular kidney in the deceased, but that the employers had not proved that it was not. On these findings he gave a verdict for the widow of $1,300. This judgment was reversed by the court of appeal on the ground that the onus of proof lies on the workman and not on the employer. The court held that sequela in the act meant a consequence proved to be caused by the disease in question and not one which may have ensued from other causes.

PARIS LETTER.

(From Our Regular Correspondent.)

PARIS, FRANCE, Aug. 20, 1908.

Death of Professor Liégeois.

Professor Liégeois, of the law department of the University of Nancy, who has just died as the result of an automobile accident, was not a physician, but his name and his works have played a great rôle in the history of hypnotism. He was the first lawyer to study the application of hypnotism to criminal law. In a memoir published in 1884, discussing hypnotic suggestion in relation to civil and criminal law, he gave some interesting examples of criminal suggestion and drew the conclusion that every one in the somnambulistic state becomes, in the hands of the experimenter, mentally and physically, a mere automaton. "Ideas spontaneously developed or acquired through education, feeling or tendencies, sympathies or repugnances, love or hatred, prejudices or passions—all these may be in an instant modified, transformed or overthrown." M. Liégeois drew from the doctrine of the complete automatism of the hypnotized subject the conclusion that a person compelled by hypnotism to commit crime was irresponsible and should be acquitted of crime; only the person who supplied the criminal suggestion was guilty; he alone ought to be prosecuted and punished. The hypnotic subject, he declared, was a mere instrument in the hands of the hypnotizer, "like the cup which contained the poison." This was one of the chief points of difference between the views of the Nancy and Salpêtrière schools. Charcot and his pupils regarded hypnotism as an actual malady, a neurosis, the appanage exclusively of hysterical subjects; they believed in the persistence in the hypnotized subject of a certain degree of personality which opposed itself to criminal suggestions. The Nancy school, on the contrary, affirmed that the hypnotic slumber might be produced in normal subjects as well; that it was the result of suggestion alone, and that suggestion rendered the subject absolutely passive In the hands of the hypnotizer, so that it was perfectly possible to make the subject commit somnambulistic crimes.

M. Liégeois' memoir and his work entitled "Relations of Suggestion and Somnambulism to Jurisprudence and Legal Medicine," 1889, made him widely known. When, in 1890, the celebrated Gouffé case was being tried the counsel for Gabrielle Bompard summoned M. Liégeois as witness for the defense. A remarkable discussion took place during this trial between M. Liégeois, who defended the doctrines of the Nancy school, and Drs. Brouardel, Motet and G. Ballet, who upheld the theory of the Salpêtrière school. Professor Liégeois' ideas, expressed at great length, had considerable influence on the verdict, for the jurors gave Gabrielle Bompard the benefit of extenuating circumstances.

Discussion on Hysteria Before the Neurological Society.

As in 1890, suggestion and hypnotism are just now exciting vivid interest, but from another point of view. There is, in fact, a complete change of base taking place in respect to the conception of hysteria. This is why the discussion on hysteria which has occupied two long sessions of the Neurological Society at Paris, and which will be resumed after the summer vacation, has attracted so much attention. Dr. Dupré was commissioned by the society in 1901 to prepare a report on the present status of the question of hysteria. The fact that so many years have elapsed between the selection of the subject and the presentation of the report is due to the fact that there are few subjects so vast, so complex and so articulated with the whole subject of neurology and psychiatry. Dr. Babinski initiated this campaign against the traditional conception of hysteria. He restricts the term "hysteria" exclusively to a group of manifestations characterized by the fact that they can be exactly reproduced by suggestion in certain subjects and which can be caused to disappear only by means of persuasion. These manifestations, to which he has given the epithet "pithiatic," ("curable by persuasion") are to be sharply distinguished from the phenomena that can not be modified by suggestion, such as the reflexes, circulatory and vasomotor disturbances, and the so-called hysteric fever. This novel conception of hysteria has aroused so many contradictory opinions lately that, as Dr. Dupré says, every logical and inquiring mind feels the need of defining exactly what is meant by the term "hysteria." all the more that the term is constantly employed in the discussion of the many difficult medicolegal questions which arise In the application of the law of industrial accidents. The questions propounded were detailed, with discussion, in THE JOURNAL, May 23, page 1714, and were mentioned August 8, page 537.

Babinski emphasized how necessary it is to guard against error in investigating sensory disturbances or contraction of the visual field. In the past, when he was investigating hemianesthesia according to the usual methods, he encountered cases of hemianesthesia very frequently. Gradually, as he perfected his method of examination, guarding more and more against suggestion, the number of cases of this nature diminished. In the last few years, out of one hundred subjects, each presenting at least one pithiatic disturbance, not a single instance of sensitivo-sensory hemianesthesia was encountered.

The point is that one must refrain from asking the patient such questions as: "Have you a good sense of touch?" or "Have you as good sense of touch on one side as the other?" This kind of interrogation arouses the idea of anesthesia in the patient. Babinski makes the patient close his eyes; then he begins by asking the patient to put the tip of his finger, left or right, on the spot where he has been touched. Then the physician touches various parts of the body; then he pinches the skin, or pricks it, asking each time: "What do you feel now?" or "What am I doing to you?" He proceeds with similar precautions in regard to the contraction of the visual field. Professor Brissaud asserts that he has never seen contraction of the visual field since he has taken precautions against errors. In place of beginning by asking the patient if he sees the object placed directly before him, the two thumbs are placed behind the head and brought gradually into the median line. Brissaud saw an industrial accident case in which no hemianesthesia was observed at first, but, after an inexpert medical examination, a hemianesthesia was found. The medical origin of this hemianesthesia was beyond question.

This discussion will bring a little order into a very confused subject. According to the true and witty saying of Lasègne, "Hysteria is a basket into which we throw the papers that we do not know how to classify." Does not the progress of science consist in perfecting our methods of classification so that there are fewer and fewer papers that one does not know how to classify?

BERLIN LETTER.

(From Our Regular Correspondent.)

BERLIN, Aug. 13, 1908.

To Reduce Infant Mortality.

The Prussian government has recently called attention anew to the fact that, by appropriate instruction of the public, intelligent care of infants can be materially promoted, and in this way the infant mortality would necessarily be reduced. In this respect the distribution of circulars (the so-called *Merkblätter*) by the registrar's office (that is, the "Bureau of Public Statistics," to which divorces, births, etc., are reported) has been of great service. The public vaccinators are instructed to take the occasion of vaccination of infants to instruct the public in an appropriate way. The midwives also are expected to assist in this direction. With reference to the most advisable methods of public care for the feeding of infants in the less well-to-do classes of the large cities, the *Wissenschaftliche Deputation für das Medizinalwesen*, the highest official medical authority in Prussia, has published the following: 1. The best method of public care for the nutrition of infants among the less well-to-do classes of the population consists in favoring and assisting to the greatest extent possible the natural nourishment from the breast of the mother. Efforts directed to this end are to be duly carried out on the part of the community. 2. The best method for securing an unobjectionable animal milk for infants of the lower classes consists in the control and, under proper conditions, the assumption of the work of supplying milk by a communal milk bureau. For this purpose it is recommended that corresponding police regulations be enacted for the various governmental districts and provinces. 3. The most advisable method for securing an appropriate nourishment for individual infants consists in the establishment of communal milk depots. In these the single meals for the infant are to be provided, ready for use, in various mixtures; with them institutes for information and for the care of infants should be organically connected in which, on the one hand, individual medical instruction should be furnished and, on the other hand, the nourishment of the infant at home should be supervised by well-instructed, permanently employed municipal nurses. 4. All measures for the communal care of infants should be conducted by a communal central office which should be under the direction of a physician.

Preventive Medicine in the Army.

The medical division of the Prussian War Department has held a consultation to determine which curative and pro-

tective sera can be especially recommended for the purposes of the army, from a scientific and practical standpoint, with reference to their mode of action, certainty of dose and keeping qualities, and has reached the following conclusions: Diphtheria and tetanus serum and also meningococcus serum are to be recommended, as no injurious by-effects have been observed. The greatest attention should be given to dysentery serum in epidemics. The other sera at the present time are not yet to be recommended. Their application must be entrusted to the judgment and the responsibility of the individual sanitary officers. The individual field sanitary divisions should always carry tetanus and diphtheria serum; the latter, however, in small quantity, as there is little reason to expect a diphtheria epidemic. No obligation to carry the other sera is imposed. The method of typhoid prophylaxis of Pfeiffer and Kolle is to have further trial, but at present it would be practical to use it only to a slight extent and first on those who have the care of the sick.

Jews as Army Surgeons.

According to a communication in the political press, which has not been contradicted, the emperor has recently issued an order according to which in the choice of officers no attention shall be given to the religion (*Konfession*) of the applicant. As heretofore, no distinction was made between the different Christian denominations, this order can affect only the Jews. As is well known, there has been for some decades no Jewish officer in active service in the German army, and in Prussia there is no Jewish officer of the reserve, that is, troops for service only in case of war, while in this respect the South German states have not carried the process of exclusion so far.

The exclusion of the Jews from the position of officer is extended not only to the officers proper, but (what especially interests us here) also to the army physicians (*Sanitätsoffiziere*). In Prussia, so far as I know, there are still only two Jewish active sanitary officers, appointed in former years, while for many years the Jews have not been admitted any longer to the active sanitary corps. They are still admitted to the reserve, and, as a matter of fact, there are at present a large number of Jewish sanitary officers of the reserve. We have here the extremely singular fact that the Jews are not considered capable of exercising the functions of physicians in the active army during peace, while in case of war, when increased trustworthiness as to capability and character is demanded of every one, this privilege is accorded them. From this contradiction it may well be claimed that the exclusion of the Jews from the active medical force of the army does not possess any essential justification, and that herein principles are at work similar to those involved in the exclusion of the Jews from the higher judicial positions and state offices—principles which need no further discussion here.

No discrimination is made against them when it is a question of soliciting contributions from them. On every such occasion when the private readiness for sacrifice is in question, the Jews are always to a recognized degree at the front, in contrast to the landed proprietors for whom the biblical sentiment: "It is more blessed to give than to receive," does not seem to exist. It is even a well-known fact that Jewish money has been drawn on for the building of evangelical churches. The reward for such sacrifices has heretofore consisted only in the conferring of orders and titles on the givers; in the civil position of our Jewish fellow-citizens no changes have been made. For the active sanitary corps, improvement in this direction would have the additional favorable result that the lack of military physicians, of which complaint has been repeatedly made, would be remedied; certainly not merely to the advantage of the medical department, but also to that of the rest of the army as well.

Personal News.

The successor of Professor Quincke in Kiel, whose resignation I have lately recorded, is Professor Lüthje of Frankfurt a. Main. Lüthje is only about 35 years old, and as Professor Quincke resigned on account of age, it may be said that here "extremes meet." It is now a general principle to call as young physicians as possible to the teaching positions. Lüthje's main work has been in the field of metabolism that is now so zealously studied in the medical clinics. He was chosen as the successor of von Noorden at Frankfurt, about a year ago, for this reason, as the latter's special field had also been metabolic diseases. von Noorden went from Frankfurt to Vienna as the successor of the deceased Nothnagel. It was a difficult matter for the Viennese to fill the vacancy, which may seem very strange, as it should be considered a great honor to succeed so important a clinician as Nothnagel. But clinical relations in Vienna are quite in a muddle, nearly as bad as politics, so that none of the clinicians called from Germany was willing to accept the invitation from Vienna. Noorden accepted the call, so rumor goes, because his position at Frankfurt was not very secure. Noorden is a man with practical views who regards the old saying: "Galenus dat opes" (Galen gives wealth), as correct and acts accordingly. The patients in Frankfurt and those who came under his care from other parts have often suffered not less from von Noorden's charges than from their disease, and many a complaint regarding the clinician has escaped from patients and from the Frankfurt physicians. Noorden still sticks to his principle—as is reported—even in Vienna. If we regard health as a priceless treasure, we must acknowledge that Noorden is right. However, even in the business employment of the physician's calling, the sentiment is valid: "Est modus in rebus, sunt certi denique fines." (There is moderation in business; at any rate there are certain limits.)

Frankfurt has recently lost another scientist in the death of Prof. E. Albrecht, a young pathologic anatomist who has produced a whole series of remarkable investigations and justified the greatest hopes by his productive power and his genius. He was a man who would have adorned the highest professional chair.

VIENNA LETTER.

(*From Our Regular Correspondent.*)

VIENNA, AUSTRIA, Aug. 25, 1908.

Vaccination in Austria.

Partly because of the constant efforts of the medical profession, and partly because of repeated outbreaks of epidemics in various large towns, the subject of vaccination has lately received much attention from the government. In consequence of the outbreak in Vienna in the summer of 1907 more than a million persons voluntarily underwent vaccination. Vaccination is not compulsory in this country, but most civil and all military offices, positions in county establishments, schools, prisons, hospitals, as well as many private positions, are open only to those who have been vaccinated. All recruits to the army, about 200,000 a year, are vaccinated on taking the oath. In Austria proper 90 per cent. of the population has been vaccinated once, and 30 per cent. twice. In the eastern and southern parts the figures are lower—10 to 20 per cent. as a rule. There is a marked correspondence between the extent of public education and of vaccination; where total illiteracy prevails the people are averse to vaccination.

Human lymph is no longer used for vaccination here. There are seven public and three private institutions for producing cow's lymph. The largest one is that in Vienna, which is owned by the state. It produces 3,000 grams of cow's lymph a year, which is made up with glycerin into 78,000 grams of vaccination lymph, equaling 700,000 tubes, each tube sufficient for two persons. As a rule, the cow's lymph is diluted with five parts of glycerin; then kept for two weeks in a refrigerator; then once more diluted, and kept on ice for four months. The lymph prepared in this way has a mild but sufficiently protective action. During the epidemic of last year, when more than 70,000 persons applied daily for lymph, the material dispensed had to be taken from fresh stock. Strong reactions, marked by rigor and pyrexia for eight to seventeen days, were observed.

The public institutions control the products of the private laboratories, and each of the latter supplies certain districts of the empire. There is, in each town or rural district, a public vaccinator, usually the *Gemeindearzt*, or poor-law medical officer, whose duty it is to vaccinate all applicants, but people of the better classes prefer to be vaccinated by their own physicians. Smallpox is usually very rare in this country, on account of efficient prophylactic measures. In the larger cities few practitioners who entered the hospitals after 1885 know smallpox except from books. Between 1888 and 1907 there were in Vienna, in a population which has increased from 1,750,000 at the former date to over 2,000,000 at the present, only 72 sporadic cases of smallpox, mostly imported from Italy, Russia or Roumania.

A movement for compulsory vaccination has lately originated among medical practitioners, and is supported by many of the educated laity. The violent opposition of the so-called *Naturheiler* or "nature-cure" quacks has caused many persons to refrain from being vaccinated. Last year's epidemic taught a forcible lesson on the value of vaccination, for in 140 out of 172 cases the patients had never been vaccinated, and in the remainder they had not been immunized.

Pharmacology

Patent Remedies for Piles.

The investigation by the *British Medical Journal* (July 11, 1908) of the nostrums most extensively advertised for piles shows that the manufacturers rely either on local applications, internal remedies or both. The local remedies generally contain an emollient base, but few ingredients of active properties. One contained calomel, zinc oxid, phenol, beeswax and soft paraffin, and another lead acetate, creosote, resinoid substance, vegetable tissue, hard paraffin and oil of theobroma. The former preparation is used as an ointment, the latter as suppositories.

The preparation of the greatest interest to us is Munyon's Pile Ointment. The label states: "Munyon's Pile Ointment permanently cures all forms of piles or hemorrhoids and immediately relieves pain, burning, itching and distress at the outlet of the bowels."

According to the *British Medical Journal:* "Analysis showed the ointment to consist of soft paraffin, with a trace of ichthyol sufficient to give a slight odor, but not enough to affect the appearance of the ointment. Experiments showed that 0.2 per cent. or over of ichthyol appreciably darkens the color of soft paraffin, and it appears, therefore, that less than this proportion is present. Estimated cost of one ounce of the ointment, one farthing" (half a cent). Its price in England is one shilling (24 cents) a package.

CELLASIN.

Report of the Council on Pharmacy and Chemistry.

The following report was submitted to the Council by a committee:

To the Council on Pharmacy and Chemistry:—Cellasin, a product of Mead Johnson & Co., was first submitted under the title of "Cellulin," with the claim that it is a ferment which is absorbed unchanged into the tissues; that it cures diabetes mellitus, and that it cures tuberculosis and establishes immunity against this disease. As these claims were unsupported by reliable evidence, they were considered extravagant and highly improbable, and it was therefore voted that the product be refused recognition. The manufacturers then indicated a willingness to modify the therapeutic claims, and the product was reconsidered and the statements made in regard to its chemical properties were submitted for verification to the committee on chemistry. This committee reported as follows:

Report of the Committee on Chemistry.—We have completed our experiments on Cellasin, prepared by Mead Johnson & Co., and we are obliged to report that the claims made for it are only in part true. Our tests show that it has at best only very weak fat-splitting power, too weak to make it of any real value. After digestion with pepsin and hydrochloric acid the same slight fat-splitting power seems to be present and this part of the claim of the manufacturer is admitted. We find also that the substance resists the action of 2.5 per cent. hydrochloric acid, as submitted in the modified claims of the firm. As the action on fat is very weak we have not been able to make a perfectly satisfactory experiment on the question of the behavior with trypsin mixtures. On receipt of the new advertising circular we have made further extended tests of Cellasin from which we conclude that the claims as published are very greatly exaggerated. The action of the product on cane sugar is so weak that a quantitative change could not be detected in 24 hours, either by the process recommended by the manufacturers or by tests of our own. The action on starch is quite distinct from that described and likewise very faint. Although a faint fat-splitting power is present, as reported above, the claims as a whole are so far from the truth that it is recommended the product be refused recognition.

The committee on pharmacology reported that the firm was still making extravagant claims for the product and endorsed the recommendations of the committee on chemistry. In accordance with the recommendations of the two committees the Council voted that Cellasin be refused recognition on account of exaggerated chemical and therapeutic claims. The above was submitted to Mead Johnson & Co., who in reply strongly insisted on the correctness of their claim that the action of Cellasin on carbohydrates and fats in acid solution is most powerful. In view of the emphatic assertions of the manufacturer the committee again made tests with Cellasin and reported as follows:

Second Report of the Committee on Chemistry:—We must again report regarding Cellasin that our findings are entirely at variance with the claims submitted by the manufacturer. Since Mead Johnson & Co. have advertised widely that their product has been submitted to the Council for inclusion in New and Non-Official Remedies, we suggest that the reasons for its rejection be published. We have given an unusual amount of time to the investigation of Cellasin and every opportunity has been afforded the firm to substantiate its claims. These claims could not be verified in any samples submitted, and the committee now and finally recommends the adoption and publication of the report.

On motion, the report was adopted and its publication directed.

W. A. PUCKNER, Secretary.

Correspondence

Buffalo Lithia Water.

CHICAGO, Aug. 10, 1908.

To the Editor:—A few weeks ago the representative of the Buffalo Lithia Water called on me at my office. In discussing the merits of the water, I called his attention to the fact that it contained merely a trace of lithium. He replied that they made no claim for it as a lithia water, but sold it as an alkaline water which the physician might prescribe as he saw fit. He said that the name was selected simply to distinguish it from the host of other mineral waters. If my memory serves me correctly, this constitutes a remarkable change of front on the part of the promoters of this widely advertised mineral water. Not long ago it was highly vaunted as a uric acid eliminant depending on its content of lithium for its therapeutic action. Doubtless many physicians during the last twenty years have prescribed gallons of this water, sometimes for patients who could ill afford to pay for it, on the supposition that it contained lithium, and was, therefore, a valuable remedy against uric acid. What is the reason for the abandonment of this claim on the part of the proprietors? Is it because, following closely the advance of medical science as they must, they have learned that lithium is no longer regarded as a uric acid eliminant? Or have they learned for the first time from the government analyses that their water contains practically no lithium? The claim that the water is an alkaline water is no better supported by facts than that it is a lithia water. This also they can learn from the government report if they will read it carefully. The alkaline theory will doubtless serve its purpose until attention is called to the fact that it is a calcic saline water. It will be interesting then to learn what quality will next be invoked to sell it. It seems as if it is time that physicians should awake to an appreciation of the need of caution in accepting the claims of those who have mineral waters to sell. There is as much need for supervision here as in the case of proprietary remedies.

* * * *

COMMENT:—Were it not for the tragic element it would be ludicrous to note the way in which manufacturers and proprietors of medicinal agents adjust themselves to varying conditions. Adaptation to environment is the essential element for success. This is illustrated by the facts brought out by our correspondent in the above letter.

When Buffalo Lithia Water was first put on the market uric acid was the scapegoat on which most of the sins of etiologic ignorance were heaped. Contemporaneous with, and in a sense a corollary of, the uric acid fallacy was another hypothesis, viz., that lithium was the uric acid eliminant

par excellence. The proposition, therefore, was a simple one: Uric acid causes disease; lithium eliminates uric acid; *ergo*, Buffalo Lithia Water, because it contains lithia, eliminates disease. Q. E. D.

The result of these two theories, combined with skilful advertising on the part of the proprietors, made Buffalo Lithia Water a valuable piece of property. "The mills of the gods grind slowly," but finally government and other chemists, with small appreciation of the psychic and commercial value of the name, demonstrated that Buffalo Lithia Water contains but the merest trace of lithium—an amount almost as small as the hypothetical gold in a widely advertised liquor cure.

Now, therefore, it is an "alkaline diuretic." While government analysts dispute the claim that it is an alkaline water, yet its proprietors may rest assured that the statement regarding its diuretic properties is beyond contradiction, for water of any kind is the simplest, surest and most universal of diuretics. It may be noted in passing that the more recent advertisements refer to Buffalo Lithia Springs Water instead of Buffalo Lithia Water. This is a distinction with a difference and the change in title has probably been brought about by that great agency for comparative righteousness in advertising—the national Food and Drugs Act!

Miscellany

Piano Dealers and Fraudulent Advertising.—The following is the preface to a pamphlet on "Fraudulent Advertising" issued by the National Association of Piano Dealers of America, which is referred to editorially in this issue. Not only are the principles expressed so admirable in themselves, but the pamphlet is such a manifest justification, from an independent quarter, of the position taken by the American Medical Association in regard to chicanery and deceit in proprietary medicines, that we reproduce it here:

"The following address, read before the National Association of Piano Dealers of America, at its seventh annual convention held in New York City, June 8, 9, 10, 1908, confines itself to a discussion of those occasional practices in the piano trade which bring discredit on the general high character of the piano business.

"Hundreds of advertisements in other lines are, however, much more reprehensible and despoil the confiding of their savings to a far greater extent.

"The glowing promises contained in the advertisements of many 'patent medicines,' electric belts, clairvoyants, fortune-tellers, fictitious mining schemes, race-track tips, and other 'get-rich-quick' schemes induce thousands of innocent persons to pay out their money to enrich those who give little but promises in return. It would seem that the time had come in our social and commercial development when something should be done by our national government to regulate public announcements of this kind in order to protect the confiding from the designing and unscrupulous; when all fraudulent and misleading advertisements should be excluded from the mails as well as those few most glaring ones which are now, through a multiplicity of complaints, occasionally brought to the notice of the postoffice authorities.

"It was through this conviction on the part of the members of the National Association of Piano Dealers of America that this address was, by unanimous vote, ordered printed and distributed; that the executive committee was instructed to investigate violations of the penal code of the State of New York as regards fraudulent advertising, and the following resolution was unanimously adopted:

"WHEREAS, Much of the present-day advertising is misleading, exaggerated and tends, not only to deceive the public, but to undermine the public confidence on which all business depends; and

"WHEREAS, There has been introduced in congress a bill looking to the prevention of fraudulent, misleading, exaggerated and deceptive advertising; be it

"*Resolved*, That we, the National Association of Piano Dealers of America, in seventh annual convention assembled, do hereby request that the Senators and Representatives of the United States shall pass a law, fashioned after similar laws in England and Germany, and in line with the policy of the pure food laws of our own country; and be it

"*Resolved*, That it is the sense of this Association that a commission, similar to that established by the pure food laws, should be established to pass on fraudulent advertising, and through warnings and other means seek to suppress such advertising, and to be empowered to institute proceedings against those who, after due notification, persist in such advertising; and be it

"*Resolved*, That this act should be so drawn that periodicals continuing to publish advertisements, determined by such commission to be fraudulent, should be subject to fine and exclusion from the mails of the United States until such misleading and fraudulent advertisements be excluded; and be it

"*Resolved*, That this Association promise its support to such legislation, and invites the cooperation of all similar associations throughout the United States, to the end that public confidence in printed statements shall be increased."

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

TESTS FOR FORMALDEHYD IN MILK.

DECATUR, ILL., Aug. 29, 1908.

To the Editor:—In THE JOURNAL, Aug. 29, 1908, page 778, in reply to a query, you state that the best tests for formaldehyd in milk are Hehner's test and Leach's test. In my experience, Schiff's reagent is far better than either of these. It is prepared as follows:

Aqueous solution of magenta (fuchsin) 0.5 per cent	40 c.c.
Distilled water	250 c.c.
Aqueous solution sodium bisulphite (sp. gr. 1.375)	10 c.c.
Pure concentrated sulphuric acid	10 c.c.

Mix and allow to stand until colorless.

Two c.c. of this solution are added to a test tube two-thirds full of suspected milk and the tube shaken. If formaldehyd be present a pink or lilac color will appear in from 30 to 60 seconds.

LYNN M. BARNES.

ANSWER.—The test above given is a general test for aldehyds; that is, aldehyds generally when added to a solution of fuchsin which has been decolorized by means of a sulphite, will restore the color of the fuchsin. While it is not a specific test for formaldehyd, nevertheless it may safely be used to test milk, since formaldehyd is the only aldehyd liable to occur in it. One objection to the method lies in the care needed to prepare the reagent. The reagent should not only be freshly prepared, but considerable care should be used to avoid an undue excess of bisulphite. Since aqueous solutions of sodium bisulphite rather rapidly deteriorate with age, the amount of the solution to be used will depend on its sulphite strength. On the other hand, the method of Hehner, or preferably that of Leach, is easily applied and rarely fails, and these methods are among the methods for the detection of formaldehyd in milk as adopted by the Association of Official Agricultural Chemists (Bulletin 107, U. S. Department of Agriculture, Bureau of Chemistry, page 185). It is, of course, desirable that the presence of formaldehyd in milk be demonstrated by two or more tests. Beyond the tests above given, among the confirmatory tests, the phenylhydrazin hydrochlorid and ferricyanid method is recommended.

This method may be applied directly to liquid foods or to an aqueous or alcoholic extract of solid foods. To from 3 to 5 c.c. of liquid food or extract of the same add a lump of phenylhydrazin hydrochlorid about the size of a pea, from 2 to 4 drops (not more) of a 5 to 10 per cent. solution of potassium ferricyanid, and from 8 to 12 drops of an approximately 12 per cent. solution of sodium hydroxid. The method is not applicable to preparations containing blood-coloring matter. In such cases use nitroprussid in place of the ferricyanid. Alcoholic extracts from foods must be diluted with water to prevent the precipitation of potassium ferricyanid.

Apply the method directly to milk without any preparation of sample. In the case of meat finely comminute the sample, extract with two volumes of hot water, and employ the liquid pressed out for the test. Warm fats above the melting point with 10 c.c. of alcohol (80 to 95 per cent. by volume), thoroughly shake, cool, and filter through a moistened paper, using the filtrate for the examination.

When formaldehyd is present to the extent of more than 1 part in 70,000 to 80,000 in the solution tested, a distinct green or bluish green reaction is obtained. In more dilute solutions the green tint becomes less marked and a yellow tinge tending toward greenish brown is formed.

CRESCO FLOUR AND GLUTEN FLOUR.

WELLINGTON, KAN., Aug. 22, 1908.

To the Editor:—A diabetic patient bought a so-called gluten flour (labelled "Cresco" flour) from a local druggist. After using it for some time he was told that it was not a gluten flour; he then brought the preparation to me and I also told him it was not a gluten flour. The druggist, who claimed it was the same as a gluten flour, wrote to the manufacturers, Farwell & Rhines, who replied

that it no longer makes a gluten flour under that name, but that the preparation Cresco flour takes its place. The firm also claimed that there is no such thing as a pure gluten flour, that such a preparation would make a glue rather than a bread, etc. Please tell me what is known of the reliability of Farwell & Rhines' products and whether their Cresco flour will take the place of gluten flour.
W. M. MARTIN, M.D.

ANSWER.—An examination of diabetic foods was made by Dr. A. L. Winton, who at that time was connected with the Connecticut Agricultural Experiment Station, but who is now in charge of the Chicago Laboratory of the United States Department of Agriculture. His report was abstracted in THE JOURNAL for June 29, 1907, page 2198, of which the following is a part:

"The author quotes from the circulars of Farwell & Rhines and of the Jirch Diabetic Food Company, two firms which manufacture food for diabetics, which contain considerable starch and no marked increase in protein. The flours thus prepared appear to possess no advantage for diabetics over ordinary wheat flour. The manufacturers attempt to justify the presence of starch in their products by appealing to medical authority for the truth of their assertion that some starch is necessary for diabetics. These statements are misleading in consequence of the fact that they fail to state that this applies only to a limited class of diabetics. They also try to make it appear that the starch has been changed so as to make it less objectionable. The author's analyses and microscopic examination do not indicate that the change, if any is of a kind that renders the materials less objectionable for diabetic use. In the author's opinion the statements are 'contrary to the best medical experience, since they urge the use of the very food elements which have been shown, without question, to aggravate the disease most seriously.'"

The analyses of Gluten Flour, Cresco Flour and Special Diabetic Flour, manufactured by Farwell & Rhines, Watertown, N. Y., given in Dr. Winton's report, showed that these preparations contained an amount of starch practically equal to that of ordinary wheat flour. Winton concludes, therefore, that they possess no advantages to diabetic patients over ordinary wheat flour.

The statement that gluten flour will not make a satisfactory food is not correct. Flours that are practically free from starch are on the market and can be used. It is just as essential to know how to use such flours so as to prepare a palatable product as it is to get a reliable flour—a fact frequently overlooked. Winton, in the report referred to, gave the following recipe for home-made gluten meal biscuit:

Gluten Meal Biscuit.—"To one egg add one heaping saltspoonful of salt and beat; then add 6 tablespoonfuls of cold water and beat until quite thick or until it becomes in quantity from one to one and one-half pints, and into this beat one tablespoonful of thin cream; add 2 heaping tablespoonfuls of dry gluten, stir this into the previous mixture; stir occasionally during one-half hour until of the consistency of thick gruel; bake 35 minutes in well-buttered muffin pans in hot oven."

We presume that Farwell & Rhines no longer sell their product under the name "gluten flour," as under the Food and Drugs Act this would constitute misbranding.

SCARLET FEVER WITHOUT RASH.

SANTA FE, N. M., Aug. 22, 1908.

To the Editor:—During a recent epidemic of scarlet fever in this city, in common with other physicians, I was much surprised at the high percentage of cases in which no rash was apparent. It was not an uncommon occurrence to find two children out of three in one family showing no rash, while a third had the disease in the more typical form. From my own experience and that of others, at least during the height of the epidemic, fully 25 per cent. of the cases were without eruption. I think from the fact that diphtheria was not even endemic, and that a history of contagion was nearly always easily obtained and also from the association of the cases, their symptomatology and sequelæ when the duration was sufficient to allow the same to develop, that the diagnosis may be accepted, although in my own cases no bacteriologic examinations were made. The type of the epidemic was exceedingly malignant and few of the patients without eruption recovered. Can you give me the modern conception of the factors causing or contributing to the erythema and those to the contrary?
JAMES A. ROLLS.

ANSWER.—Even in severe epidemics of scarlatina, so large a proportion of cases without eruption as our correspondent describes, is most rare. In such "ataxic," "cerebral" or "adynamic" cases, the system is flooded with toxins of a most powerful nature, and death may occur before the rash has appeared. In some of these cases running a very rapid course, a brief rash, lasting but a short time and later marked by a cyanotic color, may be easily missed. The nervous centers appear to be most profoundly affected in this type of cases. That this is due to the character of the infection and resulting intoxication, is most probable. In the absence of any information as to the essential agents concerned in the production of scarlatina, it is impossible to arrive at any final conception of the various effects manifested by them in the human body.

ELIXIR OF GLYCEROPHOSPHATES.

VIRDEN, ILL.

To the Editor:—Will you please tell me how the Elixir Glycerophosphate of Lime and Soda is made?
E. K. LOCKWOOD.

ANSWER.—The following is given in the National Formulary:

ELIXIR GLYCEROPHOSPHATUM.

	Metric.		Apothecaries.	
Sodium glycerophosphate (75 per cent.).....	25.	gm.	360	grains
Calcium glycerophosphate	8.75	gm.	128	grains
Phosphoric acid (U. S. P. —85 per cent).....	8.	gm.	115	grains
Glycerin	300.	c.c.	9½	fluidounces
Aromatic elixir (U. S. P.)	300.	c.c.	9½	fluidounces
Distilled water, sufficient quantity to make.....	1,000	c.c.	32	fluidounces

Dissolve the glycerophosphates and the acid in 300 c.c. (or 9½ fluidounces) of distilled water, add the glycerin and elixir, and finally enough distilled water to make 1,000 c.c. (or 32 fluidounces); then mix well and filter.

Four c.c. (1 fluidrachm) contains 0.65 gm. (1 grain) of absolute sodium glycerophosphate, and 0.32 gm. (½ grain) of calcium glycerophosphate. Average dose: 4 c.c. (1 fluidrachm).

BIDLOO'S ANATOMIC DISSECTIONS.

LOUISVILLE, KY., Aug. 24, 1908.

To the Editor:—I have a volume which contains one hundred and five full-page wood cuts of anatomic dissections, each having the descriptive text in Dutch. This volume was published in 1690, and the author was Govard Bidloo, who, I believe, was a professor in the University of Leyden. I want to learn more about the book and its value and author. The volume is bound in pigskin, is 21 inches long, 15 inches wide and about 3 inches thick.
D. E.

ANSWER.—Bidloo (1649-1713) was physician to William III of England, and in 1694 became professor of anatomy and surgery at the University of Leyden. Further information regarding him can be obtained from La Grande Encyclopedie which will be found in many of the large libraries. The first edition of Bidloo's work, dated 1685, was in Latin and copies are valuable. Cowper published the same plates in 1697 with a more complete text, and a copy of this has sold for $15. It is estimated that the Dutch edition of 1690 would probably be worth from $10 to $15. Further information may be found in Choulant's Geschichte der anatomischen Abbildungen.

SODIUM SUCCINATE IN GALLSTONES.

CHICAGO, Aug. 27, 1908.

To the Editor:—Allow me to correct the statement on page 602 of THE JOURNAL, Aug. 22, 1908, that "sodium succinate is not mentioned by standard text-books as useful for the treatment of gallstones." In Tyson's Practice of Medicine, reference is made to this drug. I have used sodium succinate in 5 gr. doses three times a day in chronic cholangitis for a number of years with apparent good results.
A. JACOBSON, M.D.

ANSWER.—Tyson, in the text-book referred to (3d Edition, page 448), says: "I have been in the habit of placing my patients, between attacks, on the succinate of sodium, in doses of 5 grains (0.32 gm.) three times a day, and it has so happened that I have seldom met a recurrence in one of these cases, although many of them passed out of my observation and may have had attacks without my knowledge."

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Sept. 5, 1908:

Ashford, M., first lieut., ordered to proceed from Washington Barracks, D. C., to camp of instruction, Fort Benjamin Harrison, Ind., and rejoin Co. C, Hospital Corps.

Baily, H. H., capt., ordered, in addition to his present duties at Fort Myer, Va., to make the necessary sanitary inspection of the rooms occupied by the clerical force of the War Department during the absence of Major Paul F. Straub, Medical Corps.

Doerr, C. E., cont. surg., now at Cincinnati, Ohio, will report in person to the commanding officer, Fort Thomas, Ky., for temporary duty.

Daywalt, G. W., M. R. C., ordered to proceed from Depot of Recruits and Casuals, Angel Island, to Presidio of San Francisco, Cal., for temporary duty.

Koyle, F. T., cont. surg., orders to proceed from Manila, P. I., to the United States, revoked.

Carter, W. F., major, leave of absence extended one month.

Mason, C. F., major, appointed member of a board of officers to meet at Pittsburg, Pa., for the purpose of examining the plant for the purification of water by ozone now in operation at the Homeopathic Hospital in that city.

Jones, H. W., first lieut., granted three months' leave of absence, to take effect about Jan. 15, 1909, upon the arrival of the transport *Buford* at Manila, P. I. He is authorized to return to the United States via Asia and Europe.

Rhoads, T. L., capt., orders for examination for promotion at Manila, P. I., revoked.

Coffin, J. M., capt., leave of absence extended one month.

Roberts, E. E., M. R. C., relieved from duty at Fort Logan H. Roots, Ark., and will proceed to Fort Sill, Okla., for duty.

George, W. R. S., M. R. C., relieved from duty at Fort Greble, R. I., and ordered to Fort Totten, N. Y., for duty.

Wertenbaker, C. L., M. R. C., relieved from duty at Madison Barracks, N. Y., and ordered to Fort Wadsworth, N. Y., for duty.

Birmingham, H. P., lieut. col., relieved from duty as member examining board for promotion of medical officers, to meet at Washington, D. C.

Arthur, W. H., lieut. col., appointed member examining board, to meet at Washington, D. C., for promotion of medical officers.

Brewer, I. W., M. R. C., granted 13 days' leave of absence.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending Sept. 5, 1908:

Mayers, G. M., P. A. surgeon, granted sick leave for three months, when discharged from treatment at the Naval Medical School Hospital, Washington, D. C.

Ely, C. F., P. A. surgeon, detached from the *Hartford* and ordered to the *Charleston*.

Moran, C. L., asst.-surgeon, detached from the Naval Recruiting Station, Dallas, Texas, and ordered to course of instruction at the Naval Medical School, Washington, D. C.

Hayward, A. R., asst.-surgeon, detached from the Marine Recruiting Station, Pittsburg, Pa., and ordered to the Naval Recruiting Station, Dallas, Texas.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Sept. 4, 1908:

SMALLPOX—UNITED STATES.

California: San Francisco, Aug. 15-22, 4 cases.
Indiana: Indianapolis, Aug. 17-23, 1 case.
Kansas: Kansas City, Aug. 16-22, 1 case; Topeka, 1 case.
Kentucky: Covington, Aug 23-29, 1 case.
Minnesota: Minneapolis, July 1-31, 4 cases.
Missouri: St. Joseph, Aug. 16-22, 7 cases.
Montana: Butte, Aug. 12-18, 1 case.
North Carolina: Greensboro, Aug. 16-22, 1 case.
Ohio: Cincinnati, Aug. 22-29, 1 case; Dayton, Aug. 16-22, 1 case.
Utah, General, July 1-31, 19 cases, 1 death.
Washington: Seattle, July 1-31, 16 cases.
Wisconsin: LaCrosse, Aug. 16-22, 5 cases; Milwaukee, Aug. 9-22, 3 cases.

SMALLPOX—FOREIGN.

Arabia: Aden, July 26-Aug. 3, 4 deaths.
Brazil: Rio de Janeiro, July 13-26, 1,078 cases, 490 deaths; Pernambuco, July 1-15, 26 deaths; Santos, July 6-19, 6 deaths.
China: Hongkong, July 12-18, 1 case, 1 death; Shanghai, July 13-19, 1 death.
Ceylon: Colombo, July 12-18, 4 cases.
Ecuador: Guayaquil, July 19-25, 6 deaths.
Egypt: General, July 18-22, 28 cases; Cairo, July 31-Aug. 5, 2 cases, 2 deaths.
France: Paris, Aug. 2-8, 3 cases.
Germany, General, July 19-25, 5 cases; Chemnitz, Aug. 2-8, 1 case; Königsberg, Aug. 2-8, 1 case.
Great Britain: Liverpool, Aug. 9-15, 1 case.
India: Calcutta, July 12-18, 8 deaths.
Italy: General, Aug. 3-9, 11 cases; Palermo, July 5-Aug. 1, 7 cases, 1 death.
Java: Batavia, July 12-18, 5 cases.
Mexico: Mexico City, June 28-July 11, 49 deaths.
Philippine Islands: Manila, July 5-11, 21 cases, 3 deaths.
Spain: Valencia, Aug. 9-15, 1 case, 1 death.
Turkey in Asia: Bagdad, July 12-18, 20 cases, 4 deaths.
Turkey in Europe: Constantinople, Aug. 3-16, 10 deaths.
Zanzibar: July 8-21, 1 case, 1 death.

CHOLERA.

Ceylon: Colombo, July 12-18, 2 cases, 2 deaths.
China: Hongkong, July 12-18, 10 cases, 6 deaths.
India: Bombay, July 4-30, 12 deaths; Calcutta, July 12-18, 19 deaths; Madras, July 18-24, 15 deaths; Rangoon, July 12-18, 1 death.
Russia: Astrachan, July 22-31, 4 cases, 2 deaths; Zaritzyne, July 24-Aug. 6, 96 cases, 55 deaths.
July 19-31, present in Samara, Simbirsk and Tamboy government districts.

YELLOW FEVER.

Brazil: Bahia, July 16-22, 3 cases on an Italian bark; Para, June 25-Aug. 6, 8 cases, 7 deaths.
Ecuador: Guayaquil, July 19-25, 1 death.
Martinique: Fort de France, Aug. 2-8, 2 cases, 1 death.
Mexico: Vera Cruz, Aug. 22-28, 1 case, 1 death.

PLAGUE.

Brazil: Bahia, July 23-29, 1 case; Rio de Janeiro, July 13-19, 2 cases.
China: Hongkong, July 12-18, 20 cases, 20 deaths.
India: General, July 5-18, 1,014 cases, 834 deaths; Bengal, June 28-July 18, 54 cases, 54 deaths; Bombay, July 8-21, 67 deaths; Calcutta, June 28-July 18, 69 deaths; Rangoon, June 28-July 18, 137 deaths.
Mauritius: May 1-31, 1 case, 1 death.
Turkey in Asia: Bagdad, Aug. 2-8, 1 case, 2 deaths.
Venezuela: Caracas, July 25-Aug. 9, 7 cases, 4 deaths.

Association News

NEW MEMBERS.

List of new members of the American Medical Association for the month of August, 1908:

ALABAMA.

Bouldin, T. J., Hollywood.

ARIZONA.

Adamson, E. W., Douglas.
Bell, W. M., Phoenix.
Bridge, G. A., Bisbee.
Greene, W. A., Douglas.
Hart, F. J., Bisbee.
Ketcherside, J. A., Phoenix.
Lund, Carl H., Douglas.
Miner, L. L., Bisbee.
Tuttle, L. J., Douglas.

ARKANSAS.

Harkins, R. A., Ratcliff.
Thompson, C. E., Ben Lomond.
Wadley, L. D., Wesson.

CALIFORNIA.

Barney, T. R., Berkeley.
Baker, W. C., San Mateo.

COLORADO.

Gotthelf, I. L., Denver.

CONNECTICUT.

Arnold, H. S., New Haven.

FLORIDA.

Greiner, C. M., Jacksonville.
Sengstak, E. P. E., Jacksonville.

GEORGIA.

Floyd, W. B., Plainville.

ILLINOIS.

Buehler, W. E., Chicago.
Danell, Karl A., Chicago.
Eaton, Matilda, Cambridge.
Jipson, N. W., Chicago.
Kimery, H. A., Chicago.
Lowell, I. S., Douglas.
Massiow, W. C., Chicago.
Mengle, S. G., Peru.
Mershimer, J. M., Chicago.
Minnick, E. M., Moline.
Murray, John, Joliet.
Noggle, P. L., Cooksville.
Owens, J. C., Plainfield.
Peterson, M. D. E., Rankin.
Pirosh, Sigmar, Chicago.
Pumphrey, G. H., Ferris.
Ross, C. F., Saunemin.
Skaggs, C. S., Harrisburg.
Snider, A. R., Tinley Park.
Wilmot, C. M., Cuba.
Zinser, H. A., Washington.

INDIANA.

Baker, W. H., South Bend.
Bostwick, J. G., Mishawaka
Carter, L. D., Richmond.
Cleveland, W. F., Evansville.
Coombs, D. H., Charlestown.
Costello, H. B. Decatur.
Cox, L. T., Napoleon.
Deputy, E. M., Dugger.
Dillinger, J. R., French Lick.
Egbert Roy, Indianapolis.
Gravatt, A. E., New Waverly.
Gray, O. F., Spencer.
Hawley, M. C., Logansport.
Henley, Glenn, Fairmount.
Hervey, S. W., Fortville.
Holliday, D. A., Fairmount.
Kauffman, D. E., Monroeville.
Kinneman, J. G., Goodland
Krouse, E. H., Fort Wayne.
Kunkler, Joseph, Terre Haute.
McClintock, C. W., Pittsboro.
McFarland, O. G., Hamilton.
McKay, J. D., Marion.
Miller, Harry, National Mil. Home.
Rayl, C. C., Monroe.
Replogle, F. M., Dunkirk.
Rubsam, Jos., Logansport.
Sellers, C. A., Montpelier.
Schwartz, W. D., Portland.
Shadday, J. B., Veray.
Shook, B. O., Spencerville.
Smith, W. E., Decatur.
Stoltelmyer, C. L., Hagerstown.
Thompson, W. H., Harlan.
Titus, P. S., Fort Wayne.
Tucker, G. W., Iuna.
Vanderburg, J. M., Albany.
Westhafer, E. K., New Castle.
White, B. S., Greensburg.

IOWA.

Allen, J. R., Waterloo.
Bellinger, F. E., Council Bluffs.
Carpenter, L. H., Grundy Center.
Downing, L. M., Wellman.
Hammer, Marion R., Newton.
Merkle, A. E., Berwick.
Phillips, A. B., Clear Lake.
Struck, K. H., Davenport.

KANSAS.

Thomas, C. A., Danville.

KENTUCKY.

Adams, L. D., Smithland.
Allen, F. L., Morehead.
Blades, J. M., California.
Bristow, S. W., Powersburg.

MARYLAND.

Peels, I. R., Baltimore.
Scheller, C. R., Hagerstown.

MASSACHUSETTS.

Blenkhorn, James, Stoneham.
Foskett, G. M., Worcester.
Golden, Lazarus, Boston.
Nickerson, J. P., West Harwich.
Reed, L. D., Plymouth.

MICHIGAN.

Ash, C. W., St. Clair.
Blanchette, V. J., Walkerville.
Cardwell, J. F., Grand Rapids.
Carson, A. W., Ishpeming.
Ertell, W. F., Kalamazoo.
Fraser, R. C., Port Huron.
Ganung, Cora P., Lansing.
Grigmon, Eugene, Menominee.
Hastie, J. D., Grand Rapids.
Holbrook, A. G., Coldwater.
McColl, J. A., Grand Rapids.
Morrison, S. S., Mount Oak.
Rumer, E. C., Flint.
Sadowski, R. J., Detroit.
Sassaman, F. W., Charlotte.
Scholtes, T. W., Munising.

MINNESOTA.

Abbott, W. P., Duluth.
Beard, R. G., Minneapolis.
Benson, G. E., Minneapolis.
Bergh, I. N., Montevideo
Brunelle, A. M., Cloquet.
Cuff, W. S., St. Paul.
Gilfillan, J. S., St. Paul.
Nyquist, J. E., Cloquet.
Randolph, Wilson, Crookston.
Russell, Thomas, Grand Rapids.

MISSISSIPPI.

Carnes, W. A., Kosciusko.
Emerson, A. E., Enoberg.
Smith, F. F., French Camp.

MISSOURI.

Blair, E. G., Kansas City.
Brown, F. H., Billings.
Casey, S. A., Lebanon.
Gebhart, O. C., St. Joseph.
Johnstone, J. A., Kansas City.
Mount, R. L., Polo.
Newman, S. E., St. Louis.
Pitts, Barton, St. Joseph.
Sanders, St. Elmo, Kansas City.
Schulz, R. P., St. Louis.

MONTANA.

Movins, A. J., Budger.

NEBRASKA.

Fitzsimons, A. W., Ohiowa.
Johnson, A. F., North Loup.
Longacre, O. E., New City.
Lucas, Voorhees, North Platte.

NEW JERSEY.

Butler, C. V., New Brunswick.
Durand, J. L., Atlantic City.

NEW YORK.

Andrews, H. D., Buffalo.
Bainton, J. H., New York City.
Bangs, L. B., New York City.
Barry, D. E., New York City.
Beard, J. J., Coldwkill.
Beatty, G. W., Brooklyn.
Billings, W. H., Jr., Buffalo
Brown, R. E., New York City.
Busby, A. H., New York City.
Carter, C. B., New York City.
Corning, J. L., New York City.
Darbois, E. O., Brooklyn.
Dockstader, C. H., New York City.
Fraenkel, Joseph, New York City.
Fichter, Louis, New York City.

Gage, J. E., Utica.
Goff, A. P., Cameron Mills.
Hasbrouck, J. F., New York City.
Hebenstreit, Robert, Buffalo.
Huey, A. J., New York City.
Humphreys, G. A., New York City.
Katz, David, New York City.
Kinney, C. W., New York City.
La Fetra, L. E., New York City.
Law, W. F., Syracuse.
Leiter, H. L., Syracuse.
Lewis, W. J., New York City.
Lewisohn, Richard, New York City.
Lyon, J. F., New York City.
McKenney, D. C., Buffalo.
Meury, J. B., Brooklyn.
Miller, G. N., New York City.
Montgomery, W. C., New York City.
Moore, J. L., Brooklyn.
Morris, Lewis, New York City.
Painter, H. M., New York City.
Parker, R. J., New York City.
Parrish, P. L., Brooklyn.
Rabinowitz, Meyer, New York City.
Reinhaier, J. E., New York City.
Rommel, W. G., Grapeville.
Rose, Achilles, New York City.
Ruppert, F. C., New York City.
Scott, A. W., Syracuse.
Solley, J. R., Jr., New York City.
Smith, C. H., New York City.
Soule, R. E., New York City.
Specht, W. H., New York City.
States, W. G., New York City.
Stephens, F. M., New York City.
Stoddart, James, Buffalo.
Sullivan, T. D., New York City.
Sumner, A. E., New York City.
Tannenbaum, Julius, New York City.
Unger, J. S., New York City.
Weed, H. M., Buffalo.
Wiener, Joseph, New York City.
Williams, L. R., New York City.
Wilson, F. N., New York City.
Wood, T. D., New York City.
Wylie, R. H., New York City.

NORTH CAROLINA.

Allan, Wm., Charlotte.
Lackner, R. G., Asheville.

NORTH DAKOTA.

O'Keefe, H., Grand Forks.

OHIO.

Benson, C. H., Columbus.
Brown, E. E., Cleveland.
Hain, O., Cleveland.
Herman, W. C., Cincinnati.
Hitchcock, C. S., Toledo.
Gerhardt, J. H., Sunbury.
Gregg, W. D., Springboro.
Kearney, B. F., Delaware.
Kistler, H. B., Sunbury.
Knight, J. A., Orient.
Masefield, H. Y., Columbus.
Phinney, F. D., Cincinnati.
Reger, H. S., Ironton.
Steward, Chas., Ashville.
Taylor, R. B., Columbus.
Weiss, W. S., Rock Creek.

OKLAHOMA.

Bagby, E. L., Fairfax.
East, T. H., Cement.
Logan, C. J., Alva.
Wall, G. A., Oklahoma City.

OREGON.

Chilton, L. W., North Powder.
Hall, C. G., Portland.

PENNSYLVANIA.

Abbaticchio, Nicholas, Latrobe.
Barnes, M. A., Pardoe.
Beale, B. F., Duncannon.
Brown, W. F., Philadelphia.
Evans, Jr., J. S., Philadelphia.
Fairbanks, Charlotte, Philadelphia.
Nelson, Wilhelmina T., Philadelphia.
Orr, J. D., Leechburg.
Parkin, E. H., Pittsburgh.
Phillips, B. W., Leeper.
Wessels, L. C., Philadelphia.

SOUTH DAKOTA.

Harris, H. G., Wilmot.
Morrison, C. W., Canton.

TEXAS.

Bevil, J. R., Batson.
Carpenter, D. T., Rhome.
Coffin, J. W., El Paso.
Hendricks, C. M., El Paso.
Lindsey, L. A., Whitt.
Sinks, E. D., El Paso.
Wheeler, F. B., Tilden.
Wright, Marcus O., El Paso.

VERMONT.

Perkins, C. N., Burlington.

VIRGINIA.

Campbell, W. A., Old Church.
Miller, E. R., Harrisonburg.
Payne, Jr., R. L., Norfolk.

WASHINGTON.

Cook, Frederick, Seattle.
Jones, Josiah, Tacoma.

WEST VIRGINIA.

Hatfield, S. D., Iaeger.
Preston, D. G., Eckman.

WISCONSIN.

Abbott, C. N., Fosterville.
Caffrey, A. J., Milwaukee.
Sommers, J. C., Madison.
Steenberg, H. S., Milwaukee.

WYOMING.

McArthur, H. J., Hanna.
Newcomer, P. W., Gillette.
Wingo, J. C., Rock Springs.

Medical Economics

New Medical Practice Act in Louisiana.

The Labbe bill, which has been signed by the governor, while in the form of an amendment to the medical law of 1894, practically constitutes a new law. It provides that any person (dentists and osteopaths excepted) who shall enter on the practice of medicine in any of its branches shall present to the State Board of Medical Examiners a diploma from a college in good standing and shall also pass a satisfactory examination before the board in anatomy, physiology, chemistry, obstetrics, physical diagnosis, surgery, pathology, therapeutics and hygiene. Any person not using internal medication is exempt from examination in therapeutics. The board is authorized to license without examination applicants presenting satisfactory certificates from a board of medical examiners of any other state. The law provides for two boards, one composed of physicians recommended by the Louisiana State Medical Society and the other of physicians recommended by the homeopathic state society; members are to be appointed for six years. The boards are instructed to give annually, in one of the daily papers published in New Orleans, an official list of the registered physicians and surgeons of the state, which list is to be received in evidence by the courts of the state as proof that the physicians named therein are duly registered.

The definition of the practice of medicine is amended to read as follows:

Any person shall be regarded as practicing medicine within the meaning of this act, who shall append the letters M.D. or M.B. to his or her name, or who shall examine, prescribe, direct or apply or shall profess or publicly advertise that he prescribes, directs or applies, for the alleged purpose of treating, curing or relieving any bodily or mental disease, infirmity, deformity, defect, ailment or injury of any person other than himself, any drug, instrument or force, whether physical or psychic, or of whatever nature or any other agency or means; whether such drug, instrument, force or other agency or means is to be applied or used by the patient or by any other person, and whether such prescribing, directing or applying be for compensation of any kind or be gratuitous; and any officer or agent, or employé or member of any corporation, association or partnership which does or professes or publicly advertises that it does examine for, treat, cure or relieve such diseases, ailments, deformities, defects, injuries or infirmities, in any of the modes mentioned in this section, shall be regarded as practicing medicine under the provison of this act.

Farmers or planters treating without compensation their families, employés or tenants, plantation midwives, opticians fitting glasses, water-cure establishments and Christian Scientists are exempt.

The section regarding revocation of license is amended to read as follows:

If any person, licensed under this act, shall be convicted of a crime or of gross unprofessional conduct, the said board shall have the power to institute proceedings before any competent court for the purpose of having the permit or license granted by them to said physicians revoked, and if it shall be shown that the physician or midwife, so licensed, has been convicted of a crime or of gross unprofessional conduct, the said board shall revoke such license or permit.

Satisfactory City Health Ordinances.

The new health ordinances of Paxton, Ill., are of interest as showing the increasing attention given to sanitary regulation on the part of many of our smaller cities. Beside providing for a board of health, the ordinances confer on the board full charge of the prevention, restriction and suppression of contagious diseases and of the sanitary condition of the city, giving it power to enter buildings, take samples of food, etc., for inspection, and to make arrests. All meats, vegetables and other foodstuffs, milk, cream, etc., are under the control of the board and specific regulations provide for the inspection and licensing of dairies and milk depots. Butcher shops and slaughter houses are required to be licensed, after proper inspection. The sale of ice, ice cream, poultry, second-hand goods, and all articles by which disease might be spread, is under the control of the board of health. The disposal of all slops, garbage and waste, as well as of diseased animals, is also under the control of the board. Lodging houses and schools and all public buildings are open to inspection and must comply with definite conditions. The distribution of samples of medicines is prohibited, except under license after submission of the samples to be inspected.

The ordinances are carefully drawn and will be of interest to any local health officers who are confronting any of the problems involved. If they are enforced as well as they are formulated, the people of Paxton are certainly to be congratulated on the manner in which their health is protected.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES.

DR. JOHN H. BLACKBURN, DIRECTOR.
BOWLING GREEN, KENTUCKY.

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

First Month.

FOURTH WEEKLY MEETING.

V[illegible] LESIONS, RIGHT HEART.

TRICUSPID [illegible]NS.

REGURGITATION.

Due to (1) endocarditis, (2) secondary to left-heart lesions, mechanism of production. Characteristic signs: (1) systolic venous pulsation, (2) systolic murmur, location, transmission.

STENOSIS.

Age, sex, incidence. Symptoms and physical signs.

PULMONARY STENOSIS, AND REGURGITATION.

Incidence, signs and symptoms of each.

PULMONARY MURMURS, NOT VALVULAR.

(1) In health, (2) exertion or fever, (3) cardio-respiratory, (4) anemias. Murmur of mitral regurgitation.

DISEASES OF THE MYOCARDIUM.

MYOCARDITIS.

Acute interstitial, parenchymatous; pathology and etiology of each. Infarcts; fibrous myocarditis; degenerations; pathology of each. Clinical types. (a) Arrhythmic form, (b) arteriosclerosis with hypertrophy and dilatation, (c) sclerosis of coronary arteries.

ANGINA PECTORIS.

Etiology: Age, sex, heredity, constitutional and infectious diseases, cardiac and arterial disease. Theories: (a) Neuralgia of heart, (b) muscular cramp, (c) ventricular distention from dilatation, (d) ischemia of muscle from coronary disease. Symptoms: Follows exertion, emotions, gastric distention, cold. Pain, character, degree, location, reflection, duration. Heart and pulse during attack.

CARDIAC NEUROSES.

PALPITATION.

Etiology: Age, sex; neurotic affections, emotions; acute infections; tobacco, coffee, etc.; association with organic lesions.

ARRHYTHMIA. (See Osler: Practice of Medicine, 1907).

1. From decreased conductivity of auriculo-ventricular bundle: (a) partial heart block, (b) complete heart block, (c) paroxysmal bradycardia.
2. From increased irritability of heart: (a) ventricular extrasystoles, (b) auricular extra-systoles.
3. From influence of extrinsic nerves: (a) vagus, (b) accelerator.
4. From disturbed diastolic filling of heart: (a) from violent respiratory movements, (b) adherent pericardium or mediastinal tumor, (c) associated respiratory and cardiac rhythm.

TACHYCARDIA.

Etiology: In health, following fright, exercise, at menopause, uterine disease, from pressure on vagi, lesions of medulla. Paroxysmal tachycardia.

BRADYCARDIA.

(1) Physiologic. (2) Pathologic: (a) acute infections, (b) disease of respiratory or digestive systems, (c) circulatory or nervous system, (d) urinary or sexual organs, (e) toxic agents, (f) constitutional diseases.

HEART-BLOCK.

Stokes-Adams' disease. Age, organic lesions, syphilis. Bundle of His; effect of compression; pathologic changes. Symptoms. Slow pulse, difference in first and second sounds. Cerebral attacks. Venous pulsations.

MONTHLY MEETING.

Etiology and Diagnosis of Malignant Endocarditis.

The Factors Which Influence the Prognosis of Chronic Valvular Disease.

The Physiologic and Therapeutic Actions of Digitalis, of Strophanthus.

Marriages

HARRY KAHN, M.D., to Miss Grace Strasser, both of Chicago, September 2.

CHARLES F. ISAACS, M.D., to Miss Iva Bassett, both of Chicago, August 29.

FREDERICK W. BARRY, M.D., to Miss Bertha Alene Allen, both of Coffeen, Ill., August 24.

JOSEPH THOMPSON AXLINE, M.D., to Miss Mabel Leonard, both of St. Louis, August 17.

HARRY NATHANIEL KROHN, M.D., to Miss Hattie Davidson, both of Denver, Colo., August 27.

B. DORSEY WINCHESTER, M.D., to Miss Ina Brent Moody, both of Louisville, Ky., August 27.

WILLIAM S. CROUCH, M.D., to Miss Leta Goode, both of Stafford, Kan., at Kingman, Kan., August 12.

DANIEL O'BRIEN, M.D., Lapeer, Mich., to Miss Lucy Rickart of Gaines, Mich., at Montrose, Mich., August 19.

HENRY COLEMAN CHALMERS, M.D., Newport News, Va., to Miss Agnes Viola Brainard of South Orange, N. J., July 13.

HERBERT C. WOOLLEY, M.D., U. S. Army, Fort Davis, Alaska, to Miss Agnes Higinbotham of Victor, N. Y., at Seattle Wash., August 24.

Deaths

William Barr Woods, M.D. Berkshire Medical College, Pittsfield, Mass., 1841; assistant surgeon of the Twenty-fifth Connecticut Volunteer Infantry and later regimental, brigade and division surgeon during the Civil War; representative from Somers in the state legislature of 1851-1852 and 1870; state senator from the Twentieth District in 1857; a member of the local board of school visitors for more than thirty years; died at his home in Somers, Conn., August 25, from dysentery, after an illness of two weeks, aged 88.

Calvin De Witt, M.D. Jefferson Medical College, Philadelphia, 1865; brigadier general, Medical Corps, U. S. Army, retired, who served during the Civil War as captain in the Forty-ninth Pennsylvania Infantry; entered the permanent establishment in 1867; was promoted to captain in 1870; to major in 1885; to lieutenant-colonel in 1898; to colonel in 1901, and to brigadier general immediately before his retirement on Aug. 9, 1903; died from heart disease at Fort Yellowstone, Wyo., September 3, aged 68.

Jacob Farnum Holt, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1859; a member of the American Medical Association; a surgeon in the Army for about three years during the Civil War; professor of anatomy, physiology and hygiene, and later professor of biology at the Central High School of Philadelphia; who accompanied Lieutenant Peary in his trip to the Arctic in 1891; died at his home in Philadelphia, August 30, from heart disease, after a short illness, aged 77.

George Hodge, M.D. Faculty of Medicine of Queen's University and Royal College of Physicians and Surgeons, Kingston, Ont., 1870; a member of the British, Canadian and Ontario medical associations; a member of the medical staff of Victoria Hospital, London, Ont., and professor of clinical medicine in the medical department of the Western University for twenty years; died at St. Joseph's Hospital, London, August 26, after an illness of several months, aged 61.

Isaac L. Millspaugh, M.D. College of Physicians and Surgeons in the city of New York, 1850; a member of the Medical Society of the State of New York; a member of the Old Richmond County Board of Health; acting assistant surgeon during the Civil War; physician of the New York City Farm Colony for more than twenty-five years, and commissioner of lunacy for the Borough of Richmond; died at his home in Richmond, August 27, aged 81.

Angus McLennan, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1873; of Inverness, N. S.; a member of the Inverness Common Council for sixteen years; of the Nova Scotia Legislative Assembly for four years, and member of Parliament from Inverness County for three terms; died in Port Hood, C. B., from cerebral hemorrhage, August 28, after an illness of two days, aged 64.

Frederick Rustin, M.D. New York University Medical College, New York City, 1897; a member of the Nebraska State Medical Association; professor of operative surgery in the John A. Creighton Medical College, Omaha; visiting surgeon to the St. Joseph's, Clarkson, Mercy and Douglas County hospitals, Omaha; was shot and killed—by himself, or by a person at present unknown—while entering his home in Omaha, September 2.

Edward Harris Johnson, M.D. Washington University School of Medicine, Baltimore, 1869; of Troy, Ala.; a member of the Medical Association of the State of Alabama, and a Confederate veteran; local surgeon for the Atlantic Coast Line; was struck by a train while making a professional call, August 27, and died a short time later, aged 63.

John M. Hamme, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1889; a member of the Kansas Medical Society; for the last four years state senator

from the Twenty-third District; was found dead in bed in Cottonwood Falls, Kan., August 26, from heart disease, aged 45.

William E. Fraker, M.D. University of Nashville (Tenn.) Medical Department, 1873; twice a representative from Greene County (Tenn.) in the legislature; died suddenly, August 29, at his home in Rheatown from cerebral hemorrhage, after five years of invalidism due to injuries received in a railway wreck, aged 56.

Hugh McG. Willson, M. D. Albany (N. Y.) Medical College, 1856; Bellevue Hospital Medical College, New York City, 1870; surgeon during the Civil War; and formerly a well-known practitioner of San Francisco; died in his apartments in Los Angeles, August 15, after a long illness, aged 65.

Luther R. White, M.D. Medical School of Harvard University, Boston, 1878; coroner of Republic County, Kansas, from 1887 to 1897, but for the last ten years a resident of Edmond; died at his old home in Scandia, Kan., August 15, from cerebral hemorrhage, after a long illness, aged 58.

Edgar L. Phillips, M.D. Medical Department of Washington University, St. Louis, 1856; surgeon of an Illinois volunteer regiment during the Civil War; for many years a practitioner of Galesburg, Ill.; died at his home in Goshen, N. Y., September 1, after a prolonged illness, aged 81.

John B. Holt, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1878; a member of the American Medical Association and of the Maine Medical Association; for twenty years a practitioner of Berlin, N. H.; died at his home in that city, August 20, after a long illness, aged 61.

James Leon White, M.D. Jefferson Medical College, Philadelphia, 1881; four years member of the board of health of South Amboy, N. J.; for a portion of that time its president, and for three years borough physician; died at the home of his sister in that city, August 11, aged 47.

Ernest A. White, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1892; while despondent from recurrent attacks of dyspepsia, and disease of the ear, is said to have shot himself through the head, August 18, and died a few minutes later, aged 36.

Calvin Knox Davison, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1869; a member of the Medical Society of New Jersey; died at his home in Stanhope, August 18, after an invalidism of nearly four years following influenza, aged 61.

Stephen Bartlett Kenney, M.D. Dartmouth Medical School, Hanover, N. H., 1861; assistant surgeon in the Army during the Civil War; for many years examining surgeon for the National Soldiers' Home, Hampton, Va.; died at Windsor, N. C., Dec. 30, 1907, aged 69.

Joseph A. Hodge, M.D. University of Louisville (Ky.) Medical Department, 1850; a member of the Kentucky State Medical Association, and one of the oldest practitioners of Henderson; died at his home, August 31, from cerebral hemorrhage, after a short illness, aged 80.

Dyer D. Webb, M.D. Rush Medical College, Chicago, 1883; a member of the Illinois State Medical Society; for thirty years a practitioner of Hoopeston, Ill.; died at his home in that city, August 24, from malignant disease of the neck, after a long illness, aged 57.

Augustus P. Throop, M.D. New York Homeopathic Medical College and Hospital, New York City, 1862; a veteran of the Civil War; formerly a practitioner of Palmyra, N. Y.; died at the Willard State Hospital, Nov. 28, 1907, after an illness of several years, aged 75.

Haywood B. Bartholomew, M.D. Rush Medical College, Chicago, 1895; a member of the American Medical Association; a member of the staff of the City and County Hospital, Denver; died suddenly at his home in Denver, from uremia, August 24, aged 38.

Abner Lewis, a retired practitioner of Oelwein, Iowa; for about 60 years a practitioner of Ohio, Indiana and Iowa; a senator from Elkhart and LaGrange counties, and later a member of the state legislature; died at his home in Oelwein, July 13, aged 89.

Luther Stowell Arnold (Examination, Vt.); for more than 40 years a practitioner of Londonderry, Vt.; and in 1889 representative to the state legislature; died at his home, Nov. 23, 1907, from cerebral hemorrhage, after an illness of 17 months, aged 73.

James Clifford Kennedy, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1871; a veteran of the Civil War; and postmaster in Sharpsburg, Pa., for several years thereafter; died at his home in Pittsburg, August 25, from pneumonia, aged 75.

Alva L. Snyder, M.D. Eclectic Medical Institute, Cincinnati, 1860; a member of the Ohio State Medical Association; of Bryan, Ohio; was struck by the tongue of a carriage in a runaway accident near Bryan, August 14, and instantly killed, aged 80.

Louis Franklin Schussler, M.D. Hahnemann Medical College and Hospital of Chicago, 1884; of Alton, Ill.; a member of the Illinois State Medical Society; died at the home of his sister in New Sharon, Iowa, from cancer of the stomach, August 14, aged 54.

Elijah E. Winne, M.D. Vanderbilt University, Medical Department, Nashville, Tenn., 1859; of Sherman, Texas; surgeon in the Confederate service during the Civil War; died at Port Lavaca, Texas, Dec. 1, 1907, aged 77, from carcinoma.

Mary H. Bowen, M.D. Northwestern University Woman's Medical School, Chicago, 1876; for 30 years a practitioner of Chicago; died at the home of her son, August 29, from paralysis of the throat, after an illness of six months, aged 74.

Ava Michener, M.D. University of Iowa, College of Medicine, Iowa City, 1888; of Homer, Ill.; a member of the Illinois State Medical Society; died in El Paso, Texas, August 20, from asthma, after an illness of about two years, aged 50.

Isaac W. Herron, M.D. Medical College of the State of South Carolina, Charleston, 1865; a Confederate veteran; died at his home in Steele Creek Township, Mecklenburg county, N. C., Aug. 23, 1907, after a long illness, aged 75.

Alexander G. Orr, M.D. Jefferson Medical College, Philadelphia, 1869; a member of the Illinois State Medical Society; died at his home in Benton, August 25, from cerebral hemorrhage, after an illness of a few hours, aged 68.

Oscar Fitzerland Miller, M.D. University of Buffalo (N. Y.) Medical Department, 1858; a surgeon in the Army during the Civil War; died suddenly at the home of his son in Flint, Mich., August 11, from heart disease, aged 77.

Benjamin Colson (Registration, Maine, 1895); an eclectic practitioner of Bangor, Maine; who represented Monroe in the legislature in 1875; an active practitioner for 51 years; died at his home, January 14, aged 81.

Alvah W. Miller (license, Michigan, 1900, years of practice), a member of the Osceola County Medical Society; died at his home in Reed City, Nov. 25, 1907, from paralysis agitans, after an illness of one year, aged 67.

Nelson B. Richards, M.D. Western Reserve University Medical College, Cleveland, 1853; Bellevue Hospital Medical College, New York City, 1865; died at his home in Kansas City, Kan., August 28, aged 86.

Matthew H. Young, M.D. Jefferson Medical College, Philadelphia, 1859; surgeon of the Fourth Kentucky Mounted Infantry during the Civil War; died at his home in Ashland, Ky., August 19, aged 74.

Manuel H. Davis, M.D. University of Louisville (Ky.) Medical Department, 1881; of Mayslick, Ky.; died suddenly Aug. 11, 1907, in his automobile while en route to Blue Lick Springs, from his home.

Elbert Ferguson Nebeker, M.D. College of Physicians and Surgeons, Chicago, 1906; a member of the Illinois State Medical Society; died suddenly at his home in Danville, August 27, aged 37.

Samuel G. Bryning, M.D. Medical Department, Victoria College, Toronto, 1863; for nearly a third of a century a practitioner of Fulton, Ill.; died in a sanitarium in Chicago, January 8, aged 81.

Julius Godfrey Heene, M.D. University of Berlin, Germany; a practitioner of Jamaica Plains and Roxbury, Mass.; died at Mount Pleasant Home, Dorchester, Mass., Dec. 24, 1907, aged 85.

Enoch A. Baum (Examination, Minn., 1887); formerly of Litchfield, Minn.; died in the Fergus Falls State Hospital, January 19, from brain disease, after an illness of six years, aged 77.

Manley William Work, M.D. Dartmouth Medical School, Hanover, N. H., 1899; a member of the New Hampshire Medical Society; died recently at his home in Manchester, aged 48.

Gilford L. Laws, M.D. Vanderbilt University, Medical Department, Nashville, Tenn., 1891; died at his home near Wildersville, Tenn., Dec. 12, 1907, from heart disease, aged 68.

W. Reid Thompson, M.D. Kentucky University, Medical Department, Louisville, 1905; of Mackville, Ky.; a member of the Kentucky State Medical Association; died August 29.

George Bailey, M.D. University of Pennsylvania, Department of Medicine, Philadelphia; of Cambridge, Mass.; died in North Conway, N. H., Sept. 12, 1907, from heart disease, aged 80.

William C. Riley, M. D. Cooper Medical College, San Francisco, 1891; a member of the American Medical Association; died recently at his home in San Francisco, aged 40.

Samuel Y. McClung, M.D. Central College of Physicians and Surgeons, Indianapolis, 1880; died at his home in Pleasantville, Ind., August 27, after an extended illness, aged 50.

Edward G. Fahnestock, M.D. Pennsylvania Medical College, Gettysburg, 1850; a veteran of the Civil War; died at his home in Minneapolis, Minn., Dec. 8, 1907, aged 78.

A. D. W. Cutler, M.D. Memphis (Tenn.) Hospital Medical College, 1848; died at the home of his daughter in Gleason, Tenn., Dec. 23, 1907, from pneumonia, aged 79.

Charles McLeod, L.R.C.S.; L.R.C.P. Edinburgh; L.F.P.& S. Glasgow, 1903; of Winnipeg, Man.; died recently at Rochester, Minn., from ulceration of the esophagus.

Horace Blair Durant (Registration, Philadelphia County, 1887); assistant surgeon of volunteers during the Civil War; died recently at his home in Philadelphia.

Rufus P. Blacknall, M.D. Philadelphia; died at his home, near Arkadelphia, Ark., January 3, from pneumonia, after an illness of about two weeks, aged 73.

Titus Albright, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1885; died at his home in Hatfield, Pa., August 31, aged 48.

Chester S. Gitchell (years of practice, Michigan, 1900) died at his home in Hobart, June 26, 1907, from angina pectoris, after a short illness, aged 73.

Calvin Washington Corriher, M.D. Jefferson Medical College, Philadelphia, 1890; died April 19, at his home in Landis, N. C., from pneumonia, aged 66.

Daniel R. DeLong, M.D. Pennsylvania Medical College, Gettysburg, 1857; formerly of Stroudsburg, Pa.; died in Philadelphia recently, aged 74.

John H. Maddux, M.D. Atlanta (Ga.) Medical College, 1882; died at his home in Culloden, Ga., August 21, after an illness of two months, aged 52.

Alonzo Chamberlin, M.D. Bellevue Hospital Medical College, New York City, 1870; died at his home in Frost, Texas, August 23, aged 61.

O. W. Clark (License, Tenn., 1889); of Gainesboro, Tenn.; died suddenly at his home, near Rough Point, Tenn., Nov. 20, 1907, aged 45.

Myles S. Moore (License, Ark., 1903); formerly of Warren, Ark.; died in Hot Springs, Ark., August 17, after a brief illness, aged 66.

Joseph L. S. Whitney, M.D. University of Buffalo (N. Y.) Medical Department, 1853; died at his home in Union, N. Y., August 21.

William H. Robb (License, Missouri, 1889); a veteran of the Civil War; died at his home in St. Louis, March 5, 1907, aged 66.

Howard L. Hawkins, M.D. College of Physicians and Surgeons, Baltimore, 1896; died at his home in Pine, Colo., Nov. 30, 1907.

Garner Gahan, M.D. Manitoba Medical College, Winnipeg, 1892; of Hartney, Man.; is reported to have died in March last.

Robert Kerr (License, Tenn., 1889); died at his home in Savannah, Tenn., August 18, from pulmonary hemorrhage.

William Kiplinger (License, Ind., 1898); of Burkett, Ind.; died August 15, aged 73.

Death Abroad.

Harold Leslie Barnard, M.R.C.S., L.R.C.P. London, 1892; F.R.C.S. England, 1895; surgeon in charge of out-patients, London Hospital; demonstrator in surgery and pathology in London Hospital Medical College; a distinguished young surgeon of London; whose article on "Simulation of Acute Peritonitis by Pleuro-pneumonic Diseases" attracted widespread attention; co-inventor, with Leonard Hill, of the sphygmomanometer; died recently in Highbury, London, from heart disease, aged 41.

Society Proceedings

COMING MEETINGS.

Med. Soc. of the State of Pennsylvania, Cambridge Spgs., Sept. 14-17.
Internat'l Congress on Tuberculosis, Washington, Sept. 21 to Oct. 12.
American Assn. of Obstet. and Gynecol., Baltimore, Sept. 22-24.
Kentucky State Medical Association, Winchester, Sept. 23-25.
American Dermatological Association, Annapolis, Sept. 24-26.
Con. of State and Prov. Bds. of N. A., Washington, Sept. 25-26.
Nevada State Medical Association, Goldfield, Oct. 6-7.
Minnesota State Medical Association, St. Paul, Oct. 7-8.
Idaho State Medical Association, Boise, Oct. 8-9.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-sixth Annual Meeting, held at Winnipeg, Manitoba, August 25-28, 1908.

The President, DR. RICHARD H. LEWIS, Raleigh, N. C., in the Chair.

Report of Committee on Ophthalmia Neonatorum.

DR. F. PARK LEWIS, Buffalo, N. Y., chairman, presented a lengthy report on this subject.

Ophthalmia neonatorum is still a most prominent cause of much unnecessary blindness. The efforts that have been made have lessened its disastrous results in a large degree, but in many instances where it seems to be infrequent it will be found to be producing blindness among the poorest and most neglected classes. In these the burden on the public treasury is greater because the victims of this neglect almost inevitably become charges on the state. The responsibility for the investigation, the recognition and the control of this infection rests on the department of public health. The committee recommends that the conclusions reached by the Committee on Ophthalmia Neonatorum of the American Medical Association be approved by the American Public Health Association, and that whenever practicable the health officer of a state or territory be urged to confer with the committee appointed by the American Medical Association and to inaugurate such measures through the state and its counties for the enlightenment of the people and the control of this disease as may in their judgment seem advisable.

The recommendations of the Committee on Ophthalmia Neonatorum of the American Medical Association are:

1. To secure the enactment of laws in each state or federal territory requiring the registry of births and placing the supervisory control and licensure of midwives in the boards of health, requiring that all midwives be examined and registered in each county, and that they be required immediately to report each case of ophthalmia occurring under their ministrations under penalty for neglect if found guilty, of fine, and for a subsequent offense, forfeiture of license.

2. The distribution by health boards through bulletins and otherwise of circulars of advice to midwives and mothers giving instructions as to the dangers, methods of infection and prophylaxis of ophthalmia neonatorum.

3. The preparation and distribution by the health boards of ampules or other receptacles containing the chosen prophylactic with specific directions for its use. It is advised that the choice of the propylactic be determined by the health officer with the advice of the committee representing the obstetricians and ophthalmologists for that state from the American Medical Association.

4. To insist on the maintenance of proper records in all maternity institutions and other hospitals in which children are born, of the number of cases of ophthalmia neonatorum, with the method of treatment and the results. These reports, which should include all cases of scarred cornea as well as of blindness, should be filed at regular intervals with the department of public health, and the records published.

5. Periodical report to boards of health by all physicians engaged in obstetrics of the number of cases of ophthalmia neonatorum that have occurred in their practice within a specified time, whether or not a prophylactic was used, and if so, what, together with the result.

DISCUSSION.

DR. GARDNER T. SWARTS, Providence, R. I.: Inasmuch as ophthalmia neonatorum is a communicable disease, the proper health authorities and health associations should take cognizance of that fact and endeavor to combat this disease as they do other communicable affections. In Rhode Island there is a law requiring that if inflammation of the eye or eyes occurs in a child the first five days after birth a physician or health authority shall be sent for to take charge of the case. It is the duty of health officers, if they find that this disease is prevalent, to notify physicians of that fact, and particularly

the younger practitioners. As the disease is a preventable one, such prophylactic measures as suggested by Dr. Lewis should be carried out.

DR. F. F. WESBROOK, Minneapolis: It should be a comparatively easy matter to convince the provincial or state authorities that money expended in providing for printing, postage, nitrate of silver, argyrol, or some other drug, is more than saved in the cost of providing for the education, housing and maintenance of blind people. In Minnesota it would probably save in the State Hospital for the Blind more than it would cost to carry out the recommendations of this committee.

DR. CHARLES F. FAGAN, Victoria, B. C.: For a number of years I have devoted my entire attention to health matters, and am ashamed to say that I have entirely neglected my duty on this question. In the future I shall endeavor to keep this subject before medical and health authorities, so that they will take action, and shall certainly take up this question in my own district.

DR. WILLIAM HENRY GUILFOY, New York City: Steps have been taken by the New York City Department of Health in prosecuting successfully some of the midwives who have been accused of not reporting cases of sore eyes among very young infants. It has been found necessary to go further, and at the last session of the legislature a bill was passed which gives the New York City Department of Health complete power over registration and the practice of midwifery, and in consequence certain rules have been formulated, a violation of which is a misdemeanor and punishable by fine and imprisonment. Very soon it is hoped that the way will be clear to have about 1,500 midwives under constant supervision.

DR. JOHN N. HURTY, Indianapolis: All those who are engaged in public health work should fully appreciate the importance of this report and its recommendations. While progress has been made in this regard, still it will be a long time before the legal authorities take hold of the matter in the right way and it will be a long time before the people will become interested in that which concerns them so deeply. It is strange that the people themselves are so indifferent in regard to such an important matter as the prevention of blindness.

Vaccinating with Humanized Lymph.

DR. FRANCISCO DE P. BERNALDEZ, Mexico, described the methods adopted by the vaccination department of the Supreme Board of Health of Mexico, with the most satisfactory results:

The region in which the vaccine is to be inserted, whether on the arm or on the leg, is carefully washed with sterilized water, soap and a brush, rubbing with the latter until the skin becomes red, and is then dried with sterilized cotton. The inoculation is done with lancets that have previously been dipped in boiling water or passed through the flame of an alcohol lamp. The pustules of the child from whom the vaccine is drawn are cleansed exclusively with sterilized water and cotton, are very superficially scarified, and not used if they bleed. A small quantity is taken up on the lancet and the inoculation made by means of small punctures, almost joining each other, and from six to eight in number. In making these punctures the lancet leaves the lymph spread over the place where the punctures have been made. These should not reach beyond the dermic layer of the skin, because that is where the lymphatic network is found abundant and fine. Moreover, this is the way to prevent the vaccine pustules from bleeding. The object in making the punctures in the form above described is to produce pustules in a series, so that the collection of the lymph will be facilitated, because there will be only one scar and not several. The pustules may be numerous and the vaccination is not painful. The advantages of this method over others that have been described are that it does not cause any pain, does not give rise to any flow of blood, facilitates the collection of the lymph, and the pustules can easily be examined to find whether they present the characteristics of true vaccination. If other methods are employed, or the skin is scratched, the pustules can not present those characteristics, and the operator remains in doubt as to whether the individual has obtained immunity or not.

Prevention of Smallpox.

DR. JAMES ROBERTS, Hamilton, Ont., described an outbreak of this disease which comprised some eighty cases, the handling of which cost the municipality of Hamilton approximately $10,000.

The feature which appeared more striking than any other in this outbreak was the precision with which, in family after family, the disease singled out the unprotected for attack. After careful scrutiny of the personal history of each patient previous to this illness no evidence was found to prove that in more than one or two instances vaccination had ever been performed. Practically all the patients were without the semblance of a scar. More thorough investigation and closer inquiry into the causes of disease furnished more convincing evidence in favor of contact infection as the chief factor in the spread of this as well as the other exanthemata, notwithstanding all that has been said and written on aërial transmission. If the enforcement of the vaccination act is entrusted by law to the sanitary authorities alone, with the necessary legislation adequately to protect them in the discharge of their duty, the great bulk of the people of Canada would be found as willing to have the law carried out as are the people of Germany. On the practicing physician devolves the great and serious responsibility of seeing that the performance of vaccination for contract prices among school children and among the industrial population in large cities is carried out in such a scrupulous and conscientious manner as in no wise to bring discredit or reproach on the twenty years of quiet and painstaking investigation which gave to the world the greatest discovery known for the preservation of the human species.

DISCUSSION.

DR. W. F. ELGIN, Glenolden, Pa., referred to the effect of heat on vaccine:

Taking virus from the same animal and subjecting it to various temperatures and noting the results, it was found that a temperature exposure of 60° C. killed the vaccine matter in five minutes. When the vaccine is kept at the temperature of the body, and is carried by physicians in their pockets for three days, it has little or no effect. At a temperature of 25° C., or ordinary room temperature, vaccine will last for a week; at a temperature of 15° C., it will last from three to six months, and if kept below the freezing point, minus ten to fifteen degrees, it has been kept for four years, and was good at the end of that time.

DR. F. M. SMERSH, Owatonna, Minn.: In order to have a successful vaccination, the arm, the towel and the vaccine must be aseptic. In a great many instances people who have been vaccinated infect themselves through carelessness. In many cases they put a dirty rag around the sore.

DR. ALTON S. FELL, Trenton, N. J., referred to the methods of quarantine in cases of smallpox:

Prior to seven years ago I had not seen a case of smallpox. In December, 1901, the disease broke out in the city of Trenton, and the president of the board of health, who had had some experience with smallpox, insisted that, no matter what the stage of the disease, every one should be taken to the Isolation Hospital and isolated for a period of eighteen days. This worked much harm, and later such rigid isolation measures were not enforced, but the results were equally as good.

DR. WILLIAM A. EVANS, Chicago: There is a growth of antivaccination sentiment in this country which is founded on the prevailing principles of American law. In addition, it is founded on a growing diminution in the virulence of the disease, due largely to the fact that men protected are modifying the causative agency of smallpox just as the causative agency of smallpox, in turn, modifies man. Some organization should prepare a refutation of the arguments advanced by antivaccinationists, and this refutation should be given the official endorsement of the organization responsible for its preparation. No organization is better prepared to do this work than the American Public Health Association.

Dr. Evans moved that a committee be appointed to prepare an argument as to the efficacy of vaccination, that the association devise some means for the dissemination of that report,

and that some effort be made toward a simultaneous and concerted movement throughout the country in opposition to the antivaccination sentiment.

This motion was carried, and a committee of seven is to be appointed by the President.

DR. L. LABERGE, Montreal: In 1885 there was a serious epidemic of smallpox in Montreal—10,000 cases in eleven months. Physicians struggled with this epidemic, using vaccination and isolation. Since then they have tried to have a compulsory vaccination act in the city, but have not been able to obtain it. They have, however, an ordinance which holds the employer and the superintendent of schools responsible. They have now power to vaccinate, and since that time vaccination has been very efficacious. They have no hesitation in isolating a case from the first hour of making the diagnosis.

President's Address.

DR. RICHARD H. LEWIS, Raleigh, N. C., pointed out the difficulties in the way of establishing a national department of public health in the United States by the dual nature of the government and the distribution of constitutional powers:

It is unquestionably to the interest of the general cause that each state should look after its own health work, acting always in a spirit of cordial cooperation with the great national bureau, which spirit the latter should be careful to foster and encourage in every way, not only to its own interests, but those of the whole country. It would not be at all difficult so to conduct the national bureau as to have the state boards look to it as both guide and friend. In a general way the kind of national bureau of health we ought to have, and the kind most desirable, is one including within its scope and management all the specific health agencies of the government now in existence, with the addition of others when needed, so thoroughly manned by the best men in their respective departments, and so richly endowed with funds that work of the highest class in demonstrating the principles underlying all subjects bearing on the public health can be done. Having by the study of the work of others and by original research settled on the correct principles of sanitation, it should make a practical application of them to the actual every-day problems of preventive medicine in the sanitary management of the District of Columbia and the territories over which the United States has absolute control. It should give a clinical demonstration of the best methods as carried out by its own thoroughly educated and trained health officers. But it is as a source of information and education that we find the chief value of the bureau. First, in the education of its own officials and the health officers of the country; second, of the medical profession, and, third, of the people. In a bill now pending in Congress further enlarging the powers and duties of the Public Health and Marine-Hospital Service, authority is given for the establishment of a school of hygiene for the training, free of charge, of such health officers as may choose to attend. The granting of a certificate is allowed, but it should go further and grant the degree of Doctor of Public Health, as is done in England. In this way we might hope for the gradual development of a sanitary profession of equal dignity with that of medicine or the other regular professions.

Typhoid in the Province of Manitoba.

DRS. R. M. SIMPSON and A. J. DOUGLAS, Winnipeg, in a joint paper on this subject, directed their attention in particular to Winnipeg:

Winnipeg is separated, for the purposes of this article, into two parts, north and south; in the south district, where nearly all houses were furnished with improvements, 549 cases of typhoid were found in the years 1903-4-5. In the north district where box closets dotted the landscape at frequent intervals, during the same period there occurred 1,983 cases. Particularly striking was the fact that as soon as the evenings began to grow cold in August, and the flies were driven indoors, the typhoid rate rose, and when the first hard frosts of winter set in, and the snow fell early in November, a diminution at once took place. Box closets offered every possible facility for flies to act as infection carriers, the excreta being above ground and accessible, and the light not excluded. It was a common thing not only to see flies swarming in these places, but also to see abundant evidence of their actually breeding in them. It was a frequent occurrence to visit houses and find two or three typhoid patients being cared for in one room where the cooking was done and food kept, the individual who was doing the cooking usually acting as nurse as well. Drastic regulations were undertaken. No patient with typhoid was allowed to remain at home unless the conditions were such that proper isolation should be obtained, and that excreta could be handled in a manner precluding the chance of infecting others. Rigid disinfection of the premises was carried out in all cases. The use of metal garbage receptacles was insisted on, also that manure should be kept in covered boxes and removed frequently and regularly to avoid affording breeding-places for flies. The provincial Board of Health and the local health department distributed literature on typhoid prophylaxis and on the care of cases. Circulars were issued instructing people to screen their houses and to keep down the number of flies by the use of fly paper and other means. Milkmen were instructed as to what their duties were. Careful supervision was exercised over the water supply, and a large number of public and private wells have been closed. Low lots were drained or filled in, rubbish heaps were burned or destroyed, lanes paved or graded, many insanitary premises were closed altogether, and work along these lines is still going on. Last year some results from their efforts were evident, and from indications the present year will exhibit an even more satisfactory showing, as up to the present they have had only 160 cases, which is considerably less than last year's total at the same time.

Epidemiology of Typhoid Fever.

DR. H. W. HILL, Minneapolis: In former times typhoid could be attributed to flies. Contact and fly contamination are the great causes of the spread of the disease.

DR. JOHN F. ANDERSON, Washington, D. C.: Flies are a fruitful source of infection, and milk is also a source of contamination, due to the lack of proper washing of the cans and other causes.

DR. HENRY ALBERT, Iowa City, exhibited a table showing the epidemics that have taken place through the carriage of bacilli from infected places, the period of infection extending over several years before the disease made itself known.

An interesting case was reported early in the present year from Germany, in which 32 cases of typhoid fever developed among a population of 130. In one case, for fifty-two years a woman had been a carrier of typhoid bacilli, and was the cause of an epidemic that prevailed last year. She was the keeper of a hotel. Women and children are the greatest carriers of the disease. One in every five hundred adults who have never had typhoid are chronic carriers. It is impossible to state how long the bacilli carriers act as such, but it is certain that there are as many carriers as there are cases of the disease. Many cases are to be traced to the gall bladder. In a few years there will be sufficient knowledge to prevent the carriage of the disease, and one of the greatest preventives will be vaccination.

Typhoid Fever in Richmond, Va., with Certain Conclusions Relating to Typhoid Fever in the South.

DR. ERNEST C. LEVY and DR. ALLEN W. FREEMAN, Richmond, in a joint contribution on this subject, pointed out the importance of prompt reporting of all cases of typhoid fever by the physician in attendance:

Freer use should be made by physicians of the laboratory aids to diagnosis which are now furnished gratis by all progressive city and state boards of health. There should be immediate inspection of every reported case, the securing of full information and the study of the data so obtained, with the view of determining the origin of the case. Instruction should be given to the members of the household, at the time of this visit, in the elementary points in the epidemiology of the disease, and printed directions should be left covering the same points. The sewerage system should be extended so

that dry closets may be entirely abolished. Pending this, rigid rules should be enforced governing the construction and maintenance of dry closets in those sections which are forced to rely on this primitive means of disposal of excreta. When a good public water supply is available, all wells in the city should be closed, and the supply extended to reach all the people. There should be thorough dairy inspection, and the rigid enforcement of a rule requiring every dairyman, under penalty of revocation of his permit, to report immediately any case of illness among the members of his household, as well as among his employés and their families. There should also be prompt investigation of such reports by the health department, and the temporary shutting off of the milk wherever a typhoid case that can not be perfectly isolated is found. Disinfection of excreta should be rigidly supervised in all typhoid cases, and disinfectants supplied gratis by the health department in indigent cases. The campaign against flies must be carried on, including the limiting of their breeding places and the screening of all typhoid cases, on the one hand, and living rooms, dining rooms and kitchens, on the other. Supervision must be instituted over "carrier" cases, although just how this can be done legally and efficiently is at present an unsettled problem. Education of the public and the medical profession by lectures and literature in the main points of typhoid prophylaxis, especially in regard to the hygiene of the sick room and the danger of carrier cases, are important points. If the greater part of southern typhoid is of the residual type, the above measures, in the light of present information, constitute the chief means of lowering the typhoid death rate in the South generally.

Commercial Pasteurization of Milk.

MR. B. R. RICKARDS and MR. W. M. CAMPBELL, Boston: A large amount of milk is pasteurized in Boston every day. Some of the milk of one contractor is pasteurized in the country and is again pasteurized in the city. It is evident that the larger part of the milk now pasteurized is before pasteurization above the limit established by the Board of Health of Boston, 500,000 bacteria to a cubic centimeter. Some of this milk is of high bacterial content. Bacteria will increase much faster in pasteurized than in unpasteurized milk. Souring bacteria are killed out quicker by pasteurization than other forms. The tendency, therefore, is for such milk to remain uncurdled much longer than unpasteurized milk, the milk thus having a chance to putrify. The pasteurization of milk affects the microscopic estimate of bacteria and leucocytes. In conclusion: (1) The commercial pasteurization of milk without restriction puts a premium on dirty milk, since dirty and old milk, otherwise unsalable, can then be put on the market.

(2) Pasteurized milk may well mean cooked dirt, cooked dung and cooked bacterial products and the laboratory is powerless to detect it.

(3) The commercial pasteurization as at present practiced in Boston probably would destroy all disease-producing organisms, with the possible exception of the bacilli of tuberculosis. The latter would probably be killed in the majority of instances. One machine only out of the three tested would be likely always to destroy the latter. The toxins produced by these and by the putrefactive organisms in dirty milk would undoubtedly escape unharmed and in many cases be capable of producing severe intestinal disturbances, especially in babies.

(4) A false sense of security is undoubtedly conveyed by the term pasteurized milk. The lack of security may come from either improper pasteurization, the pasteurization of improperly handled milk or improper care of pasteurized milk.

(5) The unrestricted pasteurization of improperly kept, old or dirty milk should be prevented by regulations or ordinances prohibiting the pasteurization of milk containing over a certain specified number of bacteria to the cubic centimeter, the bacterial limit being set with due regard to local conditions, especially the distance from which the milk comes. Such regulation should be coupled, of course, with a regulation forbidding the sale of milk above the bacterial limit established

(6) The law should require that milk heated above 140° F. should be marked heated or pasteurized milk. Pasteurized milk should not be sold as fresh milk. The pasteurization of milk in itself is probably not a harmful process and is to a certain extent a necessity under modern conditions in large cities, but commercial pasteurization should be carried on only under the most stringent supervision.

Result of Reincubation and Reinoculation of Atypical Diphtheria Cultures.

MR. B. R. RICKARDS, MR. F. H. SLACK and MR. B. L. ARMS, Boston, presented the results of reincubation and reinoculation of 242 atypical cultures:

In many instances a final result may be obtained by these means and a report sent to the physician before the result can be obtained from a secondary culture. Of 242 such cultures, 120 proved either from these or subsequent cultures to be positive; 82 proved to be negative; no subsequent cultures were received on the other 40, although requested. Of the positive cases, reinculation was positive and reinoculation negative in 20 instances. Reincubation was negative and reinoculation positive in 16 instances. Both were positive in 43 instances. Both were negative in 41 instances, the subsequent culture being positive. The results tend to show that the diagnostician who reports positive or negative only is liable to be in error in about 30 per cent. of those cultures which contain atypical forms only. It is preferable in such cases to report "suspicious organisms present," request another culture, and do further work with the culture already obtained. In many instances positive results were obtained from such cultures after from five to seven hours' additional incubation.

Report of Committee on Standard Methods for the Diagnosis of Rabies.

The committee gave a summary of its knowledge in regard to the diagnosis of rabies. In consideration of the fact that there are still many unsettled questions in regard to this subject, the committee recommends as a working method to use in diagnosing rabies the following:

1. Removal of central nervous system and of salivary glands under aseptic conditions.

2. Smears or impression slips made from ammon's horn, fixed in neutralized methyl alcohol, and stained over the flame until steamed, with the following solution:

Methylene blue, sat. alc. sol.	30 c.c.
Fuchsin, sat. alc. sol.	5 c.c.
Distilled water	300 c.c.

(To be kept in ice-box until used.)

If typical Negri bodies are demonstrated, the diagnosis of rabies can be made; if they are not found, similar slides should be made from the gray matter: (1) of the cerebellum, (2) of the cerebral cortex (motor areas), (3) of the gray matter from other areas. At least six slides should be made, covering a wide area of gray matter in order to exclude the possibilities of localization of definite Negri bodies. If no Negri bodies or suspicious forms are found in any of the slides, and the examined material is fresh, the diagnosis is probably not rabies. If suspicious forms are found in fresh material, rabies is probable. If no definite forms are found in decomposing brains, the diagnosis, doubtful, must be given. In all cases in which the diagnosis is uncertain, animals must be inoculated with a fine emulsion made from material taken from various parts of the brain and pieces from surrounding parts should be prepared for sections. Pieces should also be taken from the Gasserian and several spinal ganglia for demonstrating the presence of the rabies tubercles as well as of the Negri bodies. Two rabbits or four guinea-pigs should be used for the inoculations, which may be either subdural or intracerebral. The inoculated animals should be kept under observation for at least three months before a negative diagnosis is made. An emulsion from different parts of the brain should be made in sterilized neutral glycerin for later inoculations, if, for any reason, the first should be unsatisfactory. Decomposed brains should be allowed to remain in the glycerin for from one to three weeks before inoculation, unless very weak solutions are used. In the latter case, negative results will necessitate another inoculation.

Committee on Standard Methods of Chemical Analysis for Water and Sewage.

The committee (Earle B. Phelps, Robert S. Weston, Edward Bartow, A. Elliot Kimberly, L. P. Kinnicutt) has been at work collecting information looking to a revision of the present standard methods. A circular letter has been sent out to water chemists and others. The present standard methods are in wide use and no very important changes are suggested. Some additional matter is needed, particularly in the case of mineral analysis of water and of the analysis of alum and other materials used in water and sewage treatment. The committee has planned a comparative study of all alternative methods and modifications, which will be undertaken by the various laboratories volunteering. The final form which the various methods shall assume will be determined by the results of the proposed study. Changes are proposed in the following determinations, some of the changes being only in minor points: Turbidity, free ammonia, organic nitrogen, nitrates, copper, hardness. Additional methods are planned as follows: Complete mineral analysis, manganese, free chlorin, alum and other commercial products.

Stability and Putrescibility in Sewage Filter Effluents.

MR. EARLE B. PHELPS, Boston: The development of the modern rapid sewage filter has given a somewhat altered conception of the function of sewage disposal in general, and the rapid introduction of such filters has necessitated changes in schemes of sewage analysis and their interpretation. The most important result of all this is that we look now for qualitative changes rather than quantitative removal. The putrescibility test has become a most important one, especially as regards arriving at a definition which will be acceptable to all, and outlining a method or methods of determining putrescibility which will harmonize with that definition, and a method of expressing results so that they shall have quantitative significance. Putrescibility must mean ultimately the availability of the material as a bacterial food. To avoid confusion and confliction of the present conceptions with various past uses of the term, the word stability would better represent the thing sought after in sewage purification. Stability is not an absolute characteristic to be recorded as plus or minus, but a relative and quantitative property of organic matter, which requires quantitative treatment. The methylene blue or similar test might be adopted as a standard test. It combines great simplicity with quantitative accuracy, a combination possessed by no other test. A method of recording results should be utilized by which the time required to decolorize methylene blue can be properly weighted to give a stability factor which would be an accurate index of the quality of the effluent.

State Control of Public Water Supplies.

DR. C. O. PROBST, Columbus, Ohio: If a polluted public water supply concerns only the community that uses it there might be some argument in favor of home rule, although in this case it will be more properly home misrule. The state has become, in a large measure, one community and it must assume increased responsibility for the conditions which threaten the lives and health of the people. It should be the duty of the state to protect from pollution, so far as possible, all sources of water supplies of which use is being made. The question coming up in all populous states is: Can the streams and watersheds that must furnish public water supplies be kept free from contamination by laws and inspection? This may be possible for some of the states, but not for the great middle west territory, where usually municipal and industrial wastes must go to the streams. Should these wastes be purified in all cases in which the stream is used in any part of its course as a public water supply, or should water purification be depended on for protection? We can not settle this problem for all communities in general terms. Each community affords a problem of its own.

Means to Promote the Health of School Children.

DR. M. L. PRICE, Baltimore: School education is important. The first education of the child should be to save itself from death. Teachers should carefully instruct the children in methods of hygiene. There should also be medical inspection of the schools. Children are subject to many diseases and should not be allowed to exchange food or clothing or any article of personal use.

DR. SAMUEL G. DIXON, Ardmore, Pa., strongly urged the vaccination of children before entering school and said that all schools should have a regular medical inspection and regular disinfection.

Several other papers were read bearing on public health matters.

Model Registration Law Wanted.

The following resolution was adopted:

Resolved, That the draft of a model law for the registration of births and deaths in the United States, based on the essential requirements of registration, as laid down by the American Public Health Association in conjunction with the United States Bureau of the Census, and approved by the American Medical Association and by the Conference of Commissioners on Uniform State Laws, be cordially endorsed by the American Public Health Association; and that the Committee on Legislation of the Section on Vital Statistics be authorized to cooperate on behalf of this association with the representatives of the other organizations named, and with the Bureau of the Census in making such minor changes as may be necessary and in urging the adoption of such legislation in non-registration states.

U. S. Public Health and Marine-Hospital Service.

The following resolution, offered by Dr. John N. Hurty, Indianapolis, was unanimously adopted:

Resolved, By the American Public Health Association, That it heartily recommends to the American Congress the passage of such legislation as is intended to enlarge the scope and increase the efficiency of the Public Health and Marine-Hospital Service. To this end the association believes the powers of the service should be increased; that provisions shall be made for the retirement under pay of the members of the service, and that the salaries of the said members should be made commensurate with the medical services of the Army.

The secretary shall send a copy of this resolution to the chairman of the House Committee on Interstate and Foreign Commerce, and to the corresponding committee in the Senate.

Election of Officers.

The following officers were elected for the ensuing year: President, Dr. Gardner T. Swarts, Providence, R. I.; first vice-president, Dr. R. M. Simpson, Winnipeg, Manitoba; second vice-president, Dr. Jesus Chico, Mexico City; third vice-president, Major Charles F. Mason, U. S. Army, Washington, D. C.; secretary, Dr. Charles O. Probst, Columbus, Ohio; treasurer, Dr. Frank W. Wright, New Haven, Conn.

Section on Vital Statistics: Chairman, Dr. Charles A. Hodgetts, Toronto, Ont.; vice-chairman, Dr. William H. Guilfoy, New York; secretary, Dr. W. R. Batt, Harrisburg, Pa.

Section on Municipal Health Officers: Chairman, Dr. William C. Woodward, Washington, D. C.; vice-chairman, Dr. A. J. Douglas, Winnipeg, Manitoba; secretary, Dr. E. C. Levy, Richmond, Va.; recorder, Dr. C. V. Chapin, Providence, R. I.

Laboratory Section: Chairman, Dr. J. J. Kinyoun, Washington, D. C.; vice-chairman, Dr. William Royal Stokes, Baltimore; secretary, Mr. B. R. Rickards, Boston; recorder, Dr. H. D. Pease, Albany, N. Y.

Richmond, Va., was selected as the next meeting place.

Medicolegal

Rights to Damages Where Mother and Unborn Child Are Injured.

The Supreme Court of New Hampshire says that in the case of Prescott vs. Robinson, the question was presented as to whether the plaintiff was entitled to recover damages for her mental distress due to her fear or apprehension before the birth of a child that it would be deformed in consequence of the defendant's negligent act, and whether her mental suffering since the birth of the child and her prospective anxiety and disappointment on account of its deformity and diseased condition could be considered by the jury as recoverable elements of damage. She alleged that the defendant negligently ran an automobile into a carriage in which she was riding, hurling her to the ground, whereby she was severely injured in and on her head, body, abdomen, back and limbs, and internally so

that the child, to which she later gave birth, and of which she was at the time of said injury pregnant, was born deformed, disfigured and diseased, etc.

Assuming that she suffered mental distress, not only in regard to the effect of the accident on her person, but in regard to its effect on the unborn child, it could not be doubted that it was proximately caused by the alleged negligence of the defendant. It was a natural result reasonably to be apprehended under the circumstances. The fact that the defendant was ignorant of her condition did not lessen his liability for the natural consequences of his negligent act.

It was contended that, while the plaintiff might be entitled to recover for distress of mind due simply to her fear of the results of the accident to her person, her apprehension that the child might be deformed thereby was too remote or fanciful to be deemed in law an element of damage, although proximately caused by the defendant's negligent act. But if a fetus is deemed to constitute a part of the mother's person, an injury to it is plainly an injury to her, as much as an injury to her hand or arm would be. And it would seem to follow that she has as much right not to be harmed in the one respect as in the other. A denial of that proposition would be equivalent to an assertion that the law protects persons in the use and enjoyment of some parts of their physical organisms, but not of all parts thereof. Such a conclusion rests on no logical basis, and is supported by no legal principle. If in consequence of a blow inflicted on his person a man sustains an injury which may reasonably be expected to produce a deformity or to impair his health, his right to recover damages of the negligent defendant for his mental suffering occasioned by the prospect of such a result is a recognized and enforceable right.

The fact that one of the results of the alleged injury in this case was the deformity of the fetus, which became the child's misfortune on its birth, did not prove that no right of the plaintiff was invaded in this regard for which damages were allowable. On the contrary, it showed that her natural right to the normal action of her physical organs in the growth and development of the fetus was seriously infringed. Her ability to be delivered of a normal and healthy child was jeopardized, and her grief and apprehension before the birth on account of what the probable or not unreasonable effect would be on the child was not a remote consequence of the alleged negligence of the defendant. It was her right to produce a healthy child; and, if by the defendant's negligence her enjoyment of that right was diminished or violated, her mental distress for the unnatural result to be expected was an element of damage for which she should be compensated, as well as her disappointment at the birth of a deformed child.

In this view of the case it was unnecessary to consider or determine what, if any, rights a child in *ventre sa mere* has for injuries received by it, which may render its existence after birth painful and burdensome. Whether it may or may not, after birth, maintain an action on that account, was immaterial in this case.

The mother's right to the damages she suffers for the defendant's wrongful act in causing her to bring forth a misshapen and sickly child, instead of a well-developed and healthy one, does not depend on the question whether at the time of the injury the fetus is deemed in law a person, or whether after birth it may maintain an action to recover for the wrong to it before its birth. She can not recover in her own right for the child's injuries for which, if it were deemed a person in law, it would have a right of action; and, if it is deemed not to be a person at the time of the injury, but *pars viscerum matris*, she suffers no damage for its deformity merely, that is, the fact alone that it is deformed is a misfortune to the child, for which she is not entitled to damages, unless it causes her special physical pain and suffering. Such damages pertain to the child alone. The mother is no more entitled to them than the father is. On the birth of the child the physical consequences of the injury to it become effective. From the time of the injury to the time of the birth the mother suffers no physical damage merely because the child's limbs are distorted or because its health is impaired. It therefore follows that the child alone suffers damage on that account; and, if that damage is held to be *damnum absque injuria* (that kind of damage for which no action will lie), the mother's right thereto would *not* be increased. If the child can not recover therefor, it does not follow that she can. In fact, there is no legal connection between their rights of action for their respective damages. But while the injuries suffered by each are distinct and independent, the mother's anxiety before the birth of the child, in view of the reasonable probability that the defendant's act will cause her to produce an abnormal child, is peculiarly an element of damage to her.

This result is not in conflict with the cases in which it has been held that no recovery could be had by the mother for the miscarriage and death of a child. These cases do not decide that the mother's solicitude consequent on the injury and before the birth is not an element of her damage, but that the death of the child and her loss of the comfort and enjoyment of the company of a living child are too remote consequences to be considered by a jury in assessing her damages. But injured feelings and regret before the birth and while the mother is seeking to perform her function of childbearing through the organs of her body may be proper elements of recoverable damage, for the same reason, substantially, as led to the holding that solicitude occasioned b ythe bite of a dog, including the apprehension of hydrophobia, although the dog was the holding that solicitude occasioned by the bite of a dog, inconsideration of the jury.

The fact that the plaintiff would undoubtedly suffer great disappointment during her lifetime, occasioned by her continual observation of her child's deformity and its probable suffering, though in some sense caused by the defendant's negligence, was a misfortune for which the law could afford no compensation in an action for negligence. If the collision which caused the injury both to her and her child had occurred while she was carrying the child in her arms, it would be a novel proposition to urge that she might recover damages for her subsequent mental distress on account of the disfigurement and ill health of the child. However severe the grief may be of the friends and relatives of the victim of a catastrophe, they can ordinarily maintain no common-law action for damages on that account. The deformity of a crippled child and its suffering may be an ever-present cause of disappointment to its parents, and their lives may be miserable thereby, but they can obtain no redress on that ground against the person whose negligence was the cause of the child's condition. The policy of the law requires that no action be maintainable for that cause.

If in the case at bar the fact was that the defendant maliciously inflicted the injury on the plaintiff, one of the natural and intended results of the act would be to cause the plaintiff great mental distress, not merely on account of the injury to her and the unborn child, but on account of her parental anxiety for the future healthfulness of her child. It might not be incorrect to say that it would be conclusively presumed that the defendant's purpose was to inflict on her the mental suffering she sustained, and hence that he ought to pay for it. But if the act causing the injury was merely a negligent act, the recovery of compensation for such remote, secondary, and speculative injuries could not be justified on that ground, since a negligent defendant is answerable only for the direct, proximate, and natural results of his act. If a negligent defendant inflicts a violent blow on the person of the plaintiff, in consequence of which the latter falls on another, who is crippled thereby, the sorrow of the plaintiff for the suffering of the third party could not be considered a proximate result of the defendant's involuntary act, for which he should be charged in damages. As the child's suffering in this case was his misfortune, the plaintiff's regret on that account was not a legitimate element of her damage for the mere negligence of the defendant.

It was not necessary to discuss at length the claim that the plaintiff was entitled to recover for the "pain and suffering and inability to labor of said child," for the obvious reason that the child's peculiar injuries afforded it, if anybody, a right of action; and if it should be held, on consideration, that it could not maintain an action for the damages suffered by it after its birth, it was not apparent how a right of action therefor would become vested in the mother.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

August 29.

1 Plague: Mode of Dissemination and Methods for Control. J. C. Perry, Ancon, C. Z.
2 *Simplification of the Jakoby-Solms Ricin Method for Pepsin Determination. M. Einhorn, New York.
3 Tuberculosis Other than Pulmonary Treated with Tuberculin. G. R. Pogue, Greeley, Colo.
4 Early Diagnosis of Carcinoma of the Sigmoid. E. M. Foote, New York.
5 *Painful Cutaneous Zones in Visceral Disease. M. D. Bloomfield, Philadelphia.
6 Four Cases of Perforating Ulcers of the Alimentary Canal. H. B. Delatour, Brooklyn, N. Y.

2. Pepsin Determination.—Einhorn describes in detail his simplification of the Jakoby-Solms ricin method for the determination of pepsin. By the aid of his special apparatus, which is fully described and illustrated, he is able to carry out this test in half an hour instead of three hours. The apparatus consists of a cylindrical glass, surrounded by a vacuum. This glass tube contains a frame holding twelve graduated pepsin tubes. The whole apparatus can be filled with water and corked. Each pepsin tube is marked with a different letter and shows a mark at 2 c.c., 3 c.c., and 3.5 c.c. The lower part is graduated into millimeters. His technic is as follows: Fill each pepsin tube up to 2 c.c. with 1 per cent. ricin solution, then add up to the 3 c.c. mark filtered and diluted stomach contents, and finally add decinormal hydrochloric acid solution up to 3.5 c.c. The tube is well corked, shaken up thoroughly, and then placed in the frame. The letters on the tubes identify the various dilutions. The vacuum tube is filled with fairly hot water (50 to 60 C.), the frame with the pepsin tubes is placed in it, then the apparatus is corked and allowed to stand for half an hour. Observations are taken of the time at which the deposits in the various tubes disappear and are noted. After thirty minutes the amount of precipitate left in any of the tubes is recorded. In making the test the dilutions of 10, 20, 40 and 100 are most serviceable. Normally, the precipitate disappears in a dilution of 10 or 20. If a precipitate is present at 10 the pepsin is diminished; if it disappears at 40 the pepsin is increased. In achylia or marked subacidity the filtrate is used undiluted or only slightly diluted (from two to five times).

5. Painful Cutaneous Zones in Visceral Diseases.—Bloomfield expresses surprise that such an important subject as this has received so little attention. He asserts that visceral diseases cause pain referred to definite cutaneous areas, distinct for each organ affected, and in which tenderness exists. He quotes Head, of London, to the effect that these areas correspond to the farthest fibers of certain posterior spinal nerve roots. By mapping out the tender area it is possible to ascertain from which portion of the spinal cord the affected viscus receives its sensory nerve supply. The reflexes are always exaggerated over the hyperalgesic zone. Bloomfield describes the method of examining a patient in order to elicit these signs. On the right side the hyperesthetic area over McBurney's point indicates appendicitis. Hyperalgesia of the umbilical zone accompanies inflammation of the lower surface of the diaphragm affecting the pleura or peritoneum. In acute visceral disease the zones of tenderness are easily elicited, less so in chronic disease. Bloomfield records eight cases as examples of these hyperesthetic areas, and tabulates the zones in ninety-three patients.

New York Medical Journal.

August 29.

7 *Treatment of Tuberculosis by Administration of Mercury. R. L. Wright, U. S. Navy.
8 Beard's Theory in the Crucible of Test. J. W. Weinstein, New York.
9 Properly Constructed Filtering Beds. P. F. Bussman, Buffalo, N. Y.
10 Open Air Treatment. J. Carling, New York.
11 Hernia of Tube and Ovary, Complicated by Strangulation of Intestine. C. F. Kiviin, Troy, N. Y.
12 Case of Actinomycosis of the Pelvis. F. McMorrow, Syracuse, N. Y.

7. Mercury in Tuberculosis.—This article constitutes a supplementary report on the treatment of tuberculosis by administration of mercury described by Wright in the *United States Naval Medical Bulletin*, April, 1908, and abstracted in THE JOURNAL, July 4, page 75. Since the previous report the percentage of improvements has risen to 85, thirty-four patients being improved. Sixty-five patients are now being treated, and Wright believes that from present indications the percentage of improvement will equal if not surpass that obtained from the forty cases already reported. A few of the patients have moderately advanced lesions, but the majority are well or far advanced in the disease. He reports the cases in detail and describes his method of administration of mercury practically as follows: An injection is given every second day until thirty injections have been given. Then potassium iodid is given for two weeks—0.64 grams three times a day. After this one week is allowed to elapse without any medication; then the injections are resumed. This method is giving Wright satisfactory results.

Boston Medical and Surgical Journal.

August 27.

13 The Psychopathic Hospital and Psychiatric and Neurologic Wards. P. C. Knapp, Boston.
14 Present Status of Sanatorium Treatment for Tuberculosis. V. Bowditch, Boston.
15 Gastromyxorrhea. J. Friedenwald, Baltimore.
16 Renal Insufficiency: Importance of Its Early Recognition. G. M. Randall, Lowell, Mass.

Archives of Internal Medicine, Chicago.

August.

17 Systemic Blastomycosis. Its Etiologic, Pathologic and Clinical Features; Relation of Blastomycosis to Coccidioidal Granuloma. F. H. Montgomery and O. S. Ormsby, Chicago.
18 *Blood Pressure in One Hundred Cases of Tuberculosis at High Altitude. L. S. Peters, Silver City, N. Mexico.
19 *Serum Diagnosis of Syphilitic Diseases. E. E. Mayer and F. Proescher, Pittsburg, Pa.
20 Acute Insufficiency of the Suprarenals. R. S. Lavenson, Philadelphia.
21 Comparative Morphology of the Spirochetes of Syphilis and Yaws (Frambesia Tropica). F. F. Russell, Washington, D. C.
22 Theory of Chemical Correlation as Applied to the Pathology of the Kidney. R. M. Pierce, Albany, N. Y.

18. Blood Pressure in Tuberculosis at High Altitudes.—Peters bases his article on observations made in the New Mexico Cottage Sanitarium, which is at an altitude of 6,000 feet, and states his belief that altitude has an important effect on blood pressure. As he shows in tables, the average pressure is far higher than at lower elevations or at sea level; and this holds true even in patients in an advanced stage of the disease. The pressure was taken with a Janeway sphygmomanometer, with the cuff applied to the left arm above the elbow, the patient sitting with the forearm flexed on a level with the heart. The systolic pressure alone was recorded, as Peters believes that for all practical purposes this is sufficient. The observations were made between 9 and 10 a. m. Pressures were taken at different hours throughout the day, but only slight variations in the readings were noted. He took into consideration pulse, hemoglobin, previous infections, use of alcohol, age, sex, temperature, heart lesions and kidney disease. He did not take into consideration venereal disease in women. The estimation of hemoglobin was made with a von Fleischl instrument. The average was practically normal; he states that at that altitude and in that climate anemia is a comparatively insignificant factor. He believes that in hemorrhage the blood pressure is usually low. "If it were true that during hemorrhage the blood pressure is higher than usual, it would be interesting to determine why it is that, in a high altitude, with attending high blood pressure, hemorrhage should be a very infrequent manifestation of tuberculosis." One or two hemorrhages a year, in an institution with from fifty to sixty patients, could not be called a high percentage. While he admits that 100 cases is too small a number on which to base radical conclusions, he believes that this increase in blood pressure on coming into a high altitude may bear a direct relation to the possibility of the alleviation or cure of pulmonary tuberculosis. From these observations he draws the following conclusions:

1. Altitude has an important influence on blood pressure. The average pressure is higher here (Silver City) than at lower altitudes or at sea level.

2. There is little if any relation between blood pressure and pulse rate. The same holds true for hemoglobin.
3. Gonorrhea, syphilis, pneumonia, diphtheria and typhoid have no influence on blood pressure.
4. Alcohol has no effect on blood pressure.
5. Blood pressure increases with advancing age.
6. The blood pressure in the female is a little lower than that in the male.
7. Apparently the higher the temperature, the lower the blood pressure.
8. A complicating nephritis tends to increase blood pressure.
9. The degree of involvement and the blood pressure bear no necessary relation to each other. The pressure tends to increase as the pulmonary condition improves.
10. The blood pressure is increased in pulmonary hemorrhage.
11. The blood pressure in tuberculosis is far more reliable as a prognostic than as a diagnostic sign.

19. **Serum Reaction to Syphilis.**—Mayer and Proescher discuss the importance of this reaction. They followed the technic of Wassermann and Sachs and Altmann, which is as follows: From 4 to 5 c.c. of blood was obtained by venesection; from 0.5 to 1 c.c. of serum being enough for from 4 to 5 tubes with decreasing quantities of antigen. As antigen they employed a freshly prepared 1 per cent. solution of sodium oleate in 0.85 per cent. sodium chlorid solution. This substance, in itself hemolytic, is inhibited by blood serum in proper proportions (Noguchi and Liebermann); and as Sachs and Altmann have showed, it prevents the hemolytic action of the complement. The anticomplement action of the blood serum plays no part in these experiments.

The difference between the inhibition of soap hemolysis by syphilitic and normal serum is slight; Sachs and Altmann found it so, and Mayer and Proescher confirm their findings. The best amboceptor is the serum of a rabbit injected with calf's blood and rendered inactive by heating to 56 C.; this is known to hemolyze sheep's blood. Three injections of from 50 to 80 c.c. of calf's blood intraperitoneally suffice in from two to three weeks to furnish a sufficiently strong hemolytic serum. From two to two and one-half amboceptor units are sufficient. It is necessary to value accurately the hemolytic amboceptors used. The sheep's blood is washed several times with normal salt solution. To activate the amboceptor, fresh guinea-pig serum is used. The complement can be kept for about a week, if 1 per cent. sodium chlorid is added and then frozen. To carry out the reaction 0.6, 0.5, 0.4, 0.3, 0.25, 0.2, 0.1 c.c. of sodium oleate solution is employed (using tubes containing about 10 c.c.) and 1 c.c. of a 1 to 10 solution of guinea-pig serum and 1 c.c. of serum to be examined heated to 56 C. This is allowed to stand for one hour at 37 C. to bind the complement, then 0.5 of amboceptor thinned out to a 1:200 solution is added (from 2 to 3 amboceptor units) and 1 c.c. of 5 per cent. sheep's blood (normal salt solution). Each tube is filled to 5 c.c. with normal salt solution. The tubes are then kept at 37 C. in the thermostat and hemolysis observed for about two hours. They tabulate the results in a number of cases. Of 31 cases, 12 were diagnosed clinically as paresis; 10 of these gave a positive reaction; 2 were negative. Two cases of tabes gave a positive reaction. In three other patients lues might have been suspected, but they reacted negatively. Thirteen other cases were either positive or suspicious of lues, and three of these were negative. Thirty-one absolutely non-syphilitic patients were selected from the wards of the Allegheny General Hospital and all were negative. The authors state that although results differ somewhat most observers agree in accepting the value of this reaction when positive. When the result is negative, however, it can not be accepted as indicating anything. The fact that the results in tabes and dementia are so positive indicates strongly, they assert, that these diseases must be taken from the category of metasyphilitic and parasyphilitic diseases and be grouped positively as diseases of luetic origin; and more than this, as diseases in which there is still an active agent at work.

Bulletin Johns Hopkins Hospital, Baltimore.

July.

23 International Congress on Tuberculosis. President Roosevelt.
24 Recent Visit to Some of the Medical Laboratories Abroad. W. L. Moss, Baltimore.
25 Further Note on Mrs. Packard. W. R. Dunton, Towson, Md.
26 *Obstetrical Significance of the Blood Pressure and Its Relation to the Work of the Heart. J. M. Slemons and F. C. Goldsborough, Baltimore.
27 The Barred Road to Anatomy. H. A. Kelly, Baltimore.
28 Variations in the Calcium Content of the Blood Following Therapeutic Measures. T. R. Boggs, Baltimore.

26. **The Blood Pressure and Obstetrics.**—Slemons and Goldsborough have made observations on ten normal pregnant women, five primigravidæ and five multigravidæ, noting simultaneously the pulse rate with the estimation of the blood pressures, from which it is possible to determine an index for the volume of the blood put out by the heart per minute, and finally an index of the work of the heart. They state that the average of this index in all their patients was 418,000 during pregnancy and 267,000 during the puerperium. The hearts of multiparæ invariably do less work in the puerperium than in pregnancy—the average of the authors' observations showing a difference of nearly 50 per cent. Among the primiparæ it is the rule to find the heart work in pregnancy in excess of that in the puerperium, though the contrast is less marked—the difference being only about 10 per cent. The greater cardiac work in pregnancy than in the puerperium is referable to two factors, namely, a relatively more vigorous systole and a relatively more frequent pulse rate. Whether one or the other of these factors is always predominant, the authors' material is not large enough to determine. This point, as well as the primary cause for each of these phenomena, remains for further research.

A predominance of greater cardiac work among multigravidæ would be expected, since the first-born children are commonly not so heavy as their successors, and one would suppose that a more active circulation would predispose to larger children. That there is some connection between the heart work and the child's weight is borne out not only by the fact that the babies of multiparæ in the authors' series have a larger average weight than those of the primiparæ, but also by the finding that larger children were born to those primiparous women who presented the larger work indices. They did not, however, find the variations in this index corresponding absolutely with the variations in the weights of the children. Nor would this be expected, since many factors other than the growth of the child enter into the requirements for work made on the heart. The early part of labor shows no greater values for the work index that existed in pregnancy save a slight temporary rise with each uterine contraction. With the advent of the second stage the heart is subjected to a heavier strain than formerly, both during and between the pains. This continues, in not a few cases, into the first few hours of the puerperium, and in general is recovered from much more promptly by multiparous women than by those who have just passed through their first confinement.

Yale Medical Journal, New Haven, Conn.

July.

29 *The Call to Public Health. W. T. Sedgwick, Boston.
30 *Case of Varicose Epigastric Veins Following Phlebitis. J. E. Lane, New Haven, Conn.
31 *Medical Aspects of Hernia in the Linea Alba. G. Blumer, New Haven, Conn.

29. **The Call to Public Health.**—Sedgwick says that the call for public health is not merely a call for individual welfare, it is also one of the primal social duties. He discusses it from the humanitarian, the moral and the economic sides, and says that the call to leadership in the public health service is a call to the educated everywhere, but especially to educated physicians. He eulogizes the services of the Army and Navy medical departments to the cause of public health, and particularly the brilliant achievements of the United States Public Health and Marine-Hospital Service. The relation of the physician, he says, to the public is rapidly changing. He will soon have to be as proficient in the art of prevention as in that of healing. While he will not have to build water-works, sewerage or other sanitary systems, to be an analyst of foods or a bacteriologist, save perhaps occasionally to boards of health, he will have to fulfill the ancient and honorable function of the medical man and remain the trusted and intimate medical adviser of individuals and of families in sickness and in health, and, more important still, he will have to prevent disease among individuals, families and communities, by urging higher standards of living; by teaching temperance in all things; by advocating pure water, pure milk, pure food, pure living. If it is in him to be an investigator and a leader, he will be one or both of

these things. If not, he will be a frank and honest, but not captious, critic; he will mold and reform, if he can not lead, public opinion.

30. **Varicose Epigastric Veins.**—Lane describes a case in which, on the left anterior side of the trunk, two dilated veins stand out prominently. One vein, the superficial thoracico-epigastric vein, starting from the groin and running along the outer border of the trunk to the axilla, connects the femoral vein with the axillary. The other, running near the center of the trunk from the groin to the end of the sternum, starts as the superficial epigastric, and above the umbilicus anastomoses with the superficial median xiphoid vein, which empties into the transverse anastomotic or prexiphoid. This last vein connects the two internal mammaries.

31. **Hernia in the Linea Alba.**—Blumer describes a form of hernia recognized for over a century, but not generally noted by the profession, which begins as a rule in the median line at some point between the ensiform cartilage and the umbilicus; much more rarely between the umbilicus and the pubes. It has been described as gastrocele. It is not to be confounded with the ordinary umbilical hernia or with the visceral protrusions associated with diastasis of the recti muscles following childbirth or ascites. It is more common than is supposed. During the last eighteen months Blumer has seen nine cases and has heard of two others. They are said to be four times as frequent as femoral and umbilical hernias; though they may occur in infancy, it is unusual to find them under 18 or in extreme old age. They are more frequent in males than in females and among the laboring classes. The condition does not always arise in the same manner, a few congenital cases are on record. Straining and trauma are the commonest causes. Blumer discusses the anatomy and symptoms and quotes his nine cases in abstract. He says: "The radical operation for this form of hernia is so simple and so satisfactory that it is much to be preferred to any other form of treatment when the condition of the patient warrants it. A mere linear incision over the mass with removal of the nodule of fat, if it happens to be a properitoneal hernia, or excision of the sac if it is true hernia is all that is necessary."

Archives of Ophthalmology, New York.

July.

32 Case of Septic Thrombosis of the Cavernous Sinus. W. L. Simpson, Memphis, Tenn.
33 *Treatment of Trichiasis. T. H. Butler, Coventry, Eng.
34 Case of Unilateral Congenital Fistula of the Lachrymal Sac. H. H. Tyson, New York.
35 Dacryocystitis Due to Typhoid Bacilli. N. L. Foster, New York.

33. **Treatment of Trichiasis.**—Butler divides trichiasis into three groups: those caused by entropion, those caused by growth of adventitious lashes in a false position, the so-called distichiasis, and, finally, trichiasis caused by a combination of the other two causes. He gives the details of Van Millingen's operation, which he asserts is the only satisfactory one, and also describes Walhauer's modification of Jaesche-Arlt operation, and of various modifications of some others. He states that he has never seen a recurrence after the Van Millingen operation and that in children this operation is the one which should always be selected. For trichiasis of the lower lids he performs Snellen's operation exactly as for the upper lid. If, however, as often happens in young children, the lids are much rolled in, he advises Pann's plastic operation as it gives good and permanent results with little or no deformity. In cases in which there is much atrophy combined with entropion of the upper lids, Van Millingen's operation must first be performed, followed later by the Cant operation. He states, however, that his patients so far, have not had patience enough to allow him to do this.

Annals of Ophthalmology, St. Louis, Mo.

July.

36 *Abscess in the Zygomatic Fossa. M. L. Foster, New York.
37 New Applantation Ophthalo-tonometer. E. B. Coburn, New York.
38 Import of Opsonins in the Eye. Z. Nedden, Bonn, Germany.
39 Case Showing Manifest Canal of Cloquet. A. C. Maisch, Hagerstown, Md.
40 Diseases of the Iris and Ciliary Body. M. L. Foster, New York.

36. **Abscess in the Zygomatic Fossa.**—Foster reports an interesting case of this rare condition. The patient, a woman, awoke one morning (May 16) with pain in the left cheek and eye, and some swelling of the side of the face and congestion of the eyelid. One physician prescribed but gave no relief. Another, who was called two days later, ordered a linseed meal poultice and later lanced the gum above the carious stump of the left canine tooth, but found no pus. All the teeth on the affected side were badly decayed and had given trouble for years. Not until after the final operation was it learned that at this time the patient was unable to open her mouth and that the physician who lanced the gum was unable to force the jaws apart far enough to allow him to make the incision as far back as he desired. This important symptom, which might have furnished a clue to the true diagnosis, was not mentioned till comment was made on its absence in the presence of the patient's son. After the incision had been made in the gum poultices were applied, and a day or two later a profuse flow of pus appeared. By this time the swelling and the exophthalmos had become very great and neither was lessened by the discharge of pus. The patient was sent to a hospital and the lower fornix was incised through the conjunctiva, but no pus was found; on the next day, however, there was free discharge from the wound. Although the incision was kept open there was no diminution in the exophthalmos. A week later, under ether anesthesia, the swelling over the stump of the canine tooth was again incised but no pus found. A knife about the size of a Graefe knife was passed between the rectus and oblique muscles and into the posterior part of the orbit in four places, but without finding pus. The antrum was opened near the canine tooth, without result. Next day in spite of profuse discharge of pus from the incision on the nasal and lower side of the eyelid, the exophthalmos did not decrease and vision was rapidly failing. About a month later the lower lid appeared to be very swollen near the outer canthus and an incision at this point evacuated a large amount of pus. A probe was introduced and passed along the margin of the orbit to the nasal bone. Although the discharge from this wound continued to be profuse the exophthalmos persisted. A nasal specialist was consulted and removed part of the turbinate and explored the sinuses, but did not find them affected.

On July 30, under anesthesia, an incision was made along the lower border of the orbit and a sinus resulting from the previous operations was followed to its extremity. Beyond this the periosteum was pressed back and separated from the bone by means of an elevator and a subperiosteal collection of fluid found that extended backward and outward from the inner wall of the orbit. This area of exposed bone was carefully examined for caries or an aperture which might lead to the ethmoid or elsewhere, but nothing of the sort was found, and no evidence of a retrobulbar tumor or abscess was detected. On the next day it was found that fully two-thirds of the detached periosteum had become reattached to the bone and the patient seemed much relieved. Though no history of syphilis could be obtained, the patient was given potassium iodid. By the end of August she was discharged from the hospital with the sinus still open and leading to a small area of exposed bone. In January next, the patient was again anesthetized and it was found that the sinus terminated behind the ramus of the jaw. The cavity was thoroughly irrigated with salt solution, the skin adherent to the bone and tissues of the lid was dissected free and the cavity packed with sterile gauze. The symptoms gradually disappeared and in September of that year the patient was completely well. Foster believes that in this case the infection must have originated from the carious teeth or from the mucocele of the lachrymal sac, as the zygomatic fossa is so situated that it is almost impossible for infection to reach it from without.

Journal of the Indiana State Medical Association, Fort Wayne.

July.

41 The Physician as a Citizen. D. C. Peyton, Jeffersonville.
42 *Intestinal Autointoxication and Its Treatment. J. M. Anders, Philadelphia.
43 Opportunity for Work, Progress and Peace. W. N. Wishard, Indianapolis.
44 Rural and Village Hygiene. D. W. Robertson, Deputy.
45 Pathology and Treatment of Lobar Pneumonia. H. T. Montgomery, South Bend.

42. **Intestinal Autointoxication.**—Anders presents the subject of toxins formed within organized bodies in a broadened aspect. In summarizing the known etiologic factors he would assign conspicuous positions to the following, in the order given: 1. Impaired metabolic processes; 2. errors of diet, or the ingestion of too large a quantity of proteids, and, although less commonly of fats and sugars; 3. constipation; 4. intestinal pathologic states, such as chronic appendicitis, mucous colitis and gastroptosis, with or without coloptosis. From an etiologic standpoint the cases should be subdivided, according to their origin, into gastric and intestinal forms of chronic autointoxication. He quotes Forchheimer's description of the chemical aspect of chronic intestinal autointoxication (*Am. Jour. Med. Sci.*, July, 1907, abstracted in THE JOURNAL, Aug. 3, 1907, p. 443). His personal experience indicates an increase in the elimination of indican in nearly all cases, especially in those showing marked accumulations throughout the colon. It is obvious, he says, that in direct proportion to the renal elimination of indican will be raised the autoprotective power of the human organism. On the other hand, its disappearance from the urine does not impair the protective processes, but points to a subsidence of the putrefactive fermentative changes in the intestine. He discusses the microscopic urinary findings, acetonuria, the nervous phenomena, emphasizing depression, dread, fear, nostalgia, melancholia, delusions, etc., but cautions against the fallacy of making an assured diagnosis of either autotoxic hysteria or neurasthenia without clear and convincing evidences of the presence of the etiologic conditions; for while the influence of intestinal autointoxication is undoubted, most cases of neurasthenia do not bear the stamp of an enterogenous toxicosis. Anders discusses cutaneous symptoms and says that there is no more difficult problem than the positive recognition of chronic intestinal autointoxication. He draws a practical distinction between primary chronic autointoxication of intestinal origin and that form which occurs secondarily to other acute and chronic diseases. The latter variety is more common than the former, and the alimentary autointoxication is sufficiently open to observation. In treatment, he discusses the diet, restriction of which, sometimes to fluids alone, is advisable. The lighter and more digestible albuminoids, milk, eggs, fish, oysters, fowl (except turkey) and game (in season), in moderate quantity, with wholesome fruits, green vegetables, cereals, potatoes, either mashed or baked, and a small amount of fat and sugar, are suitable. In the secondary form, particular attention must be paid to the primary affection. Milk, cocoa and hot water should replace tea and coffee. Alcohol should be used only cautiously—a small amount of acid wine, claret or Rhine, may help nutrition. Antiseptic laxatives, of which calomel is the best, are to be used; also certain of the alkaline saline mineral waters. Irrigation of the colon is useful in intractable forms. Further elimination should be aided by stimulating the sweat glands. The urinary tract is an important route of elimination. Physical exercises are recommended.

Washington Medical Annals.

July.

46 Review of Pathology. E. B. Behrend, Washington.
47 Review of Gynecology. G. B. Miller, Washington.
48 Postoperative Mechanical Ileus. I. S. Stone, Washington.
49 Catalytic Action of Lipase in Relation to Acidosis. P. S. Roy, Washington.
50 *The Syncytium, Its Functions and Relations to the Toxemia of Pregnancy and to Cancer; Probability of a Primal or Universal Antitoxin. G. W. Wood, Washington.
51 Chronic Ulcer of the Duodenum. J. F. Moran, Washington.
52 *Snake Poisoning in the United States. P. Willson, Washington.

50. **The Syncytium.**—Wood discusses the literature of the anatomy, physiology and pathology of the placenta, the toxemia of pregnancy—advancing it as his own opinion that acute yellow atrophy of the liver in pregnancy is due primarily and directly to the digestive action of the syncytial enzymes of the parenchyma of the liver and that the real toxemia of pregnancy is peptone poisoning, due to the presence of a syncytio-peptone in the blood—and the cause of cancer. Of this he says: "To put it tersely, all that is needed to start a cancer is an embryonic cell, some bile, a medium containing elements necessary to its nutrition, and a suitable receptacle." He announces "the discovery of a new law of pathenogenesis" in the following terms: "When an invading or misplaced cell possessing proteolytic, amylolytic or lipolytic enzymes comes into contact with bile in sufficient quantity it takes on new activities, its digestive powers are doubled, and the tissue in which the meeting occurs has its power of resistance lessened to a corresponding degree." He asserts the "peculiar immunity of nursing babes from all contagious diseases and the lightness of the attack when acquired," and suggests the possible presence in the mother's milk of an immunizing substance, probably derived from the antisyncytiotoxin. This, he holds, suggests in turn the possibility of a primal or universal antitoxin. He adds: "The serum from the blood of any healthy pregnant animal—cows excepted, because their enzymes are probably depleted by excessive milking—would be a ready-made antitoxin for many conditions." It should never be used intravenously, but should be injected into the tissues, like diphtheria antitoxin.

52. This article was published in full in the *Archives of Internal Medicine*, June, 1908, and was commented on editorially in THE JOURNAL, July 11, p. 132.

Therapeutic Gazette, Detroit.

July.

53 *Test to Determine the Adaptability of the Donor's Blood to the Receiver's Blood in Transfusion. J. Funke, Philadelphia.
54 Value of Acetone in the Treatment of Inoperable Carcinoma of the Uterus. F. H. Maier, Philadelphia.
55 Treatment of Sarcoma by the Roentgen Rays. P. H. Pfahler, Philadelphia.
56 *Palliative Treatment of Malignant Diseases by the Roentgen Rays. C. L. Leonard, Philadelphia.

53. **Transfusion.**—Funke says that statistical study shows the result in 42 per cent. of the cases transfused to be favorable and in 53.5 per cent. unfavorable. In all probability the last-named figure could be greatly reduced by searching for compatible blood, and he believes that this can readily be done by appropriate preliminary tests. If, on animal experiments, the diluted blood should prove to be beneficial, the danger from embolism would be diminished and the technic of the operation greatly simplified.

56. **Palliative Use of X-Ray in Malignant Disease.**—Leonard says that this agent has a wide field of use in the palliation of malignant disease, but good results can not be expected unless it is vigorously and intelligently employed by those possessing the clinical and technical experience essential to its effective use.

Old Dominion Journal, Richmond, Va.

July.

57 *Syphilis of Bone and Joints. L. R. Wiggs, Richmond.
58 Diseases of the Thyroid. M. Willis, Richmond.
59 Case of Sporadic Trichinosis; Methods of Diagnosis. D. Vanderhoof, Richmond.
60 Rectal Neuralgia. B. R. Tucker, Richmond.
61 Cesarean Section in Eclampsia; Recovery of Mother and Child. M. Tompkins, Richmond.

57. **Syphilis of Bone and Joints.**—Wiggs discusses these conditions in detail under Lancereaux's classification, viz.: (a) inflammatory osteoperistitis, (b) gummy tumor of bone, (c) dry caries, atrophic form. In determining whether or not a particular bone or joint lesion is of specific origin, Wiggs gives the following as a working summary:

1. We must consider carefully the history—venereal sores (no matter how mild), sore throat, skin eruptions, nocturnal pains, etc.
2. Presence of glandular enlargements (epitrochlear, mastoid, femoral).
3. We must remember that obscure cases, in general, and atypical symptom-groups are often due to syphilis.
4. We should make careful examinations of all suspected cases for iritic adhesions, throat and skin scars, etc. Special attention is due to these scars, as an aid in making a retrospective diagnosis. They are pigmented, usually, and clear up gradually in from four to eight years. They are apt to be found on the scalp and anterior surfaces of the legs.
5. Nocturnal pains, double deafness without otorrhea, paralysis of single cranial nerves—these all point to a possible luetic condition.
6. Justus' blood test, which consists in quick transient reduction of hemoglobin after injection of mercury.
7. Therapeutic test—in obscure cases.

Keeping these facts in mind and depending more on the physical examination than on mere statements of the patient,

one can usually arrive at a relatively positive conclusion. Finally, he discusses the treatment.

Colorado Medicine, Denver.

July.

62 *Indirect Injuries of the Optic Nerve. E. W. Stevens, Denver.
63 The Effect of Altitude on Heart Lesions in Children. O. P. Shippey, Saguache.
64 *The Medical Supervision of Schools. J. T. Melvin, Saguache.
65 Plea for Greater Preventive Care During Scarlet Fever. H. W. Rover, Denver.
66 Case of Primary Mastoiditis. C. E. Cooper, Denver.
67 *Tuberculous Seminal Vesiculitis. J. F. McConnell, Colorado Springs.

62. Injuries of Optic Nerve.—Stevens reports two cases that seem to corroborate the conclusions of Jameson Evans (*Brit. Med. Jour.*, July 8, 1905), that a special type of incomplete unilateral blindness may result from blows in the region of the external angular process of the frontal bone, the lesion probably being one of limited contusion of the nasal fibers of the optic nerve by *contre-coup*. The ophthalmic artery winding around the nerve on its outer side from below probably protects the nerve on the side away from the blow against the impact with the outer side of the foramen. The treatment is rest, physical and mental, light diet, and aperients for a week or two.

64. Medical Supervision of Schools.—Melvin considers medical supervision of schools necessary to train the teachers, to relieve the patients of incapacitating defects, and to supervise the school itself, its light, temperature, ventilation, capacity, desks, seats and blackboard, hours of study and play, etc.

67. Tuberculous Seminal Vesiculitis.—McConnell, after discussing this subject and reporting cases, points out the frequency of the involvement of the vesicles by the tuberculous process; that they are sometimes the sites of a primary lesion; that the disease may be unilateral or bilateral; that the gonococcus is influential in preparing the soil for the proliferation and growth of the tubercle bacillus. The interference with the mechanism of ejaculation and the presence of pyuria must also be noted as prominent clinical symptoms. The necessity for accuracy in diagnosis is probably the element that is most striking in the consideration of this subject, since the stripping seances, so effective in dealing with the non-tuberculous varieties, are here sources of considerable danger. The prognosis is exceedingly hopeful in the early case.

Kentucky Medical Journal, Bowling Green.

July.

68 *Tuberculosis of Bone. B. F. VanMeter, Lexington.
69 Present Day Status of Tuberculosis. D. Caldwell, Paducah.
70 Relation of Bovine to Human Tuberculosis. T. S. Lewis, Lexington.
71 The Opsonic Index and Bacterial Vaccines. S. Marks, Lexington.
72 Acute Parenchymatous Nephritis. A. P. Dowden, Eminence.
73 Common Gastrointestinal Diseases of Infancy and Childhood. S. H. Ridgeway, Shepardsville.
74 Management of Typhoid Fever. N. H. Rodgers, Salvisa.
75 The Physician and the Laity. J. M. Taylor, Glasgow.
76 Typhoid Fever and Its Treatment. C. T. Riggs, Upton.
77 Cancer of the Rectum. J. H. Rice, Hopkinsville.
78 Gastric Ulcer. E. C. Anderson, Hopkinsville.
79 Preventive Medicine in the Home and School. W. Blair, Glen's Fork.
80 *Device for Prolonged Irrigation and Drainage of Bladder After Prostatectomy. J. S. Chenoweth, Louisville.
81 Use and Abuse of Opium. C. A. Edelen, Louisville.

68.—Abstracted in THE JOURNAL, Nov. 9, 1907, p. 1625.

80. Prolonged Irrigation of Bladder.—Chenoweth describes a device for continuous and efficient irrigation and drainage of the bladder without pain or inconvenience after prostatectomy. It consists of two principal parts: 1, the reservoir; 2, the exhaust pump. The reservoir, for which he does not claim originality, consists of a two-gallon glass bottle with an opening at the top and a lateral opening near the bottom. Through the perforated rubber stopper which closes the upper opening pass two glass tubes. The shorter of these tubes is connected by a rubber tube with a short bent glass tube which passes through stopper in lateral opening. This rubber tube has near the lower end a perforation, 3 mm. in diameter, through which the water escapes. The longer tube reaches a level one-half inch above this outlet and serves to admit air to the bottle. Leading from the reservoir is a rubber tube in which is set a glass coil. This tube is provided with a clip or stop-cock. The reservoir is mounted on a movable stand, so that it can be raised or lowered at will. The *modus operandi* is described in detail. The article is illustrated.

St. Louis Medical Review.

July.

82 *Importance of Proper Advice to the Consumptive. O. H. Brown, Mt. Vernon, Mo.
83 Parathyroid Glandules. W. E. Leighton, St. Louis.
84 Treatment of Skin Disease, by the Roentgen Rays. R. H. Boggs, Pittsburg, Pa.
85 Direct Laryngoscopy. R. H. Johnston, Baltimore.

82. The Consumptive.—Brown reports cases advised on the home treatment of tuberculosis, prior to their admission into the Missouri State Sanatorium. These patients, when first seen, were all going the usual course of a consumptive; none of them was gaining. All began to improve at once, though they did much better later, when place was found for them in the sanatorium. This is due to the fact that at home there is usually no one who can act as a competent nurse to discipline the patient as he should be disciplined. The success of sanatorium treatment is discipline. But because a patient does well at home is no reason for making him feel that there is no use in going to a sanatorium. "There is little use in a patient's being restored to a fairly good state of health unless he is also taught how to retain his health." This, Brown maintains, is the most significant feature of sanatorium treatment.

American Journal of Urology, New York.

July.

86 Symptomatology, Diagnosis and Treatment of Simple Chronic and Tuberculous Prostatitis. C. G. Cumston, Boston.
87 *Recovery in Case of Multiple Fractures of the Pelvis and Femur with Extensive Trauma of One Kidney and Impaction of Pubic Arch in the Bladder. J. F. Menestrina, St. Louis.
88 *Differential Diagnosis Between Complete and Incomplete Ureterovaginal Fistula. E. Jonas, St. Louis.
89 Specimens of Faulty Descent of the Testicle. D. E. Wheeler, Buffalo.
90 Prophylaxis of the Functional Disturbances of the Male Sexual Organs. V. G. Vecki, San Francisco.

87. Multiple Fractures of Pelvis.—Menestrina describes a case of multiple fractures of the pelvis and femur with extensive trauma of one kidney and impaction of the pubic arch in the bladder. He suggests that when similar cases are encountered, an *x*-ray examination should be made as early as possible to avoid errors. He adds that when exploratory incision in the linea alba shows an infiltrated condition of structures covering the pelvic peritoneum, even if no crepitus be present, fracture of the innominata should be suspected and if possible the displaced fragments should be molded back to their proper positions. If a distention of the bladder exists by a hematoma and no visible communication is found from the peritoneal site the bladder should be explored by cystoscopy. He warns against making his mistake of omitting examination of the anterior portion of the bladder. Rectal examination may also reveal protruding fragments. Sounding may assist in locating existing conditions, but it must be carefully done lest fresh hemorrhage be started. He advises against trying to do too much at once, for the shock may kill the patient. If renal catheterization after such an injury shows pus later, the affected kidney should be explored without hesitation by a nephrotomy incision. Reclaiming the functional activity of the kidney will certainly be a great reward for the effort. Hemorrhages during and after exploration are best controlled by packing gauze on either side of the kidney. He reiterates: "Do not omit the use of the cystoscope in such a case, as it is indispensable." One with sufficiently small caliber must be used, such as can be used in a child's urethra by enlarging the external meatus, aiding its introduction by chloroform anesthesia. Urinary antiseptics and fluids should be used freely.

88. Complete and Incomplete Ureterovaginal Fistula.—Jonas summarizes his remarks as follows: 1. *Leergehen*

(empty contraction) of the ureter is an important point for differential diagnosis between a lateral opening and complete interruption of the continuity of the ureter in ureterovaginal fistula. 2. Operative interference in ureterovaginal fistula where there is only a lateral opening in the ureteral wall is not advisable until there has been a chance for spontaneous healing."

Monthly Cyclopedia and Medical Bulletin, Philadelphia.

July.

91 *Psychotherapy: Its Scope and Limitations. C. K. Mills, Philadelphia.
92 Personal Experience in Psychotherapy Inculcated by Physiologic Analogies. T. A. Williams.
93 Dactylitis Streptococci. J. K. Young, Philadelphia.
94 The Bier Hyperemia. How to Enhance Its Efficiency. C. E. de M. Sajous, Philadelphia.
95 Address to Graduating Class of the Medico-Chirurgical College. L. W. Fox, Philadelphia.
96 Scabies. J. V. Shoemaker, Philadelphia.
97 Treatment of Early Cases of Ectopic Pregnancy Before and After Rupture. J. A. McGlinn, Philadelphia, Pa.
98 Alous Serrulata. J. M. French, Milford, Mass.

91. **Psychotherapy.**—Mills discusses hypnotism, suggestion without hypnosis, educational or reasoning methods, the light shed by psychic medicine on the nature of disease, limitations of psychotherapeutics, and religion and psychotherapy. In regard to the last point, now being much discussed, he says: "I repeat, therefore, that psychotherapy, like medicinal or mechanical or surgical or climatic or any other sort of therapy, belongs to the physician and not to the clergyman; however sincere the latter may be in his idea that it is his duty to invade the province of his medical brother."

Iowa Medical Journal, Des Moines.

July.

99 Study of Pediatrics by the General Practitioner, or Is the Study of Pediatrics Worth the Attention it Gets, and Does It Get the Attention It Deserves? C. F. Wahrer, Ft. Madison.
100 Positive Diagnosis of Incipient Pulmonary Tuberculosis by Roentgen Rays. J. Rudis-Jicinsky, Cedar Rapids.
101 Sulphocarbolates in Typhoid. J. H. Seibert, Bellevue.
102 History of the Iowa State Medical Society and Its Connection with the Iowa State University. A. A. Noyes, Mason City.

Long Island Medical Journal, Brooklyn, N. Y.

July.

103 Inaugural Address—Associated Physicians of Long Island. H. B. Delatour, Brooklyn, N. Y.
104 Scillitin—Its Properties. J. Burke, Manitowoc, Wis.
105 Study of Calculus Lodged in the Ureter: Part II. R. Hazen, Brentwood, L. I.
106 Fracture of the Patella. M. Figueira, Brooklyn, N. Y.
107 What Shall be Brooklyn's Contribution to the Medical Progress of the Twentieth Century? A. C. Jacobson, Brooklyn, N. Y.

Archives of Diagnosis, New York.

July.

108 *Relative Value of the Roentgen Rays in Diagnosis of Pulmonary Tuberculosis. R. A. Bolt, Cleveland, Ohio.
109 The Differential Blood Count as an Aid in Diagnosis of Empyema in Children. L. Fischer, New York.
110 I. Case of Pyloric Cancer; Gastrectomy; Gastrojejunostomy—No Evidence of Recurrence After Nearly Two Years. When Ovaries Were Removed for Sarcoma. II. Two Cases of Very Early Cancer About the Pylorus. J. B. Deaver, Philadelphia.
111 *Appendicitis—Extra Significance of Left Side Pain. J. F. Erdmann, New York City.
112 *Pathognomonic Symptom (or Sign) of Appendicitis not Hitherto Described. H. Illoway, New York.
113 Dyspeptic Type of Appendicitis. C. G. Cumston, Boston.
114 *Diagnosis of Multiple Sclerosis. D. R. Brower, Chicago.
115 Diagnosis of Tabes and Pseudotabes. P. Zenner, Cincinnati.
116 Case of Muscular Dystrophy Following Acute Poliomyelitis in Infancy. S. D. Ingham, Philadelphia.
117 Diagnosis of Mastoid Disease Without the Presence of the Classical Symptoms. E. L. Meierhof, New York.
118 *Prognosis of Prostatic Obstruction After Operation. F. Cabot, New York.

108. **The Diagnosis of Pulmonary Tuberculosis.**—Bolt discusses the use of the x-rays in the diagnosis of incipient pulmonary tuberculosis and also in following up the course of a chronic trouble. He believes the following conclusions are warranted:

1. The use of the Roentgen rays in the diagnosis of pulmonary tuberculosis requires of the Roentgenographer a thorough training in technical methods of handling his apparatus and in developing his negatives. His interpretation of results will depend largely on his general medical training, and experience in studying chests by means of fluoroscope and radiograph.

2. The rays, when rightly used, offer a valuable aid to the already useful methods of physical examination. The latter, however, should never be neglected.

3. While confirming many times the results of the older methods, the Roentgen rays have a peculiar value in showing more exactly the extent, position, and something of the nature and progress of the process in the lungs. The diagnosis of incipient tuberculosis, even by means of the rays, is often a difficult matter. Some observers claim to have discovered by means of the rays the morbid changes in an apparently sound lung before they could be elicited with auscultation and percussion.

4. With unilateral limitation of the movements of the diaphragm; darkening at the apices, or even diffuse haziness, with distinct mottling; accentuation of density about the bronchial lymph glands; relative opacity on deep inspiration, and alteration of the normal outline of the heart shadow, we are justified in treating a case as incipient tuberculosis, even if other physical signs are absent. The presence of distinct areas of calcified tubercles, marked peribronchial thickening, infiltration shadows at the apex, and increased transparency of cavities give grounds for definite diagnosis.

5. In every well-equipped hospital Roentgen-ray examination of the chest should be made a matter of routine procedure, especially in all suspicious and doubtful cases. Radiographic study of chronic cases may also prove advantageous in watching the progress of the lesions.

6. Finally, no opportunity should be lost to examine postmortem findings of patients who have previously had a Roentgen-ray examination. In this way we may be able to correct faulty interpretations, and thus accumulate data for a more rational diagnosis. This has largely been neglected in the past, but should henceforth receive the earnest attention of all interested in the subject.

111. **Left Side Pain in Appendicitis.**—Erdmann calls attention to the fact that pain present in the lower quadrant, with evident tenderness, pain and resistance in the right quadrant—appendicitis, in other words—and without any marked evidence of abdominal distention, signifies free fluid in the pelvic cavity, varying in character from serous to seropurulent or purulent, although the appendix, and abscess if present, be thoroughly walled off. He does not recall making a failure in this diagnostic factor in a single case.

112. **New Pathognomonic Symptom of Appendicitis.**—Illoway describes a sign which he has come to look on as pathognomonic of appendicitis as follows:

It is elicited in this manner: The patient is placed at full length on the operating table or chair for the purposes of examination. This is made in the usual way, and when all the data have been obtained the patient is told to flex the leg on the thigh and the thigh on the trunk. The physician then asks if the movement, or rather the upward pressure thus made, causes any pain or soreness in the lower portion of the right half of the abdomen, i. e., the appendicular region.

If the answer is "no" or "very little," either the physician flexes the thigh more closely, more forcibly, on the trunk or directs the patient to do so, and again inquires if it causes pain or soreness or increases the pain or soreness. The patient is then told to extend the leg to full length with a quick and rather sudden movement and is asked if this has caused any pain or soreness. If neither of these movements has caused any appreciable pain or soreness, the patient is directed to execute the same movements with the left leg and to compare the sensation produced as to whether it is any different from that caused by the right leg or is the same on both sides. Illoway has found that invariably (and in a number of instances this has been verified by a subsequent operation) only when appendicitis was present, whether as the primary malady or as a secondary involvement, did the flexion of the thigh on the trunk give rise to a feeling of pain or a sensation of soreness deep down (as the patient would say), and even when this was not so marked the rapid extension would cause an accentuation of it.

It may happen that the more forcible flexure of the thigh on the trunk may cause some slight pain or soreness, but if this is not due to appendicitis there will be no pain or soreness on extension. It is the pain, or even soreness, produced both on flexion and extension—and he lays the greater stress on the extension—that he regards as a positive and unfailing sign of the presence of appendicitis.

114. **Multiple Sclerosis.**—Brower, discussing the diagnosis of multiple sclerosis, says that hysteria is the disease with which it is most frequently confounded. The differentiation must be made by the hysterical stigmata, by sensory disturbances, being much more conspicuous in hysteria, and by a careful study of the eye findings. In hysteria the optic nerve is normal; nystagmus, developed by forced lateral movements,

is not severe in hysteria; the regular concentric contraction of the field of vision in hysteria does not inconvenience the patient, and is associated with conjunctival anesthesia.

118. **Prognosis of Prostatic Obstruction.**—Cabot analyzes a number of cases of the postoperative results in prostatic obstruction. He states that what we want to learn is more about each individual case at time of operation and whether the patient finally regained good urinary control; also whether he was again able to do his share in the world's work. Many patients would better have died at time of operation than have been condemned to constant distress as an after-result. It seems to Cabot that, before we can gain much value from statistics, it should be stated that the patient's wound has healed and that he has been out and about for at least three months from time of operation.

Military Surgeon, Carlisle, Pa.

July.

119 German Field Sanitary Regulations. P. F. Straub, U. S. Army.
120 An Improvised Litter on Horseback. F. T. Woodbury, U. S. Army.
121 History of the Typhoid Cases Occurring on Board the U. S. S. Connecticut. P. E. McDonnold, U. S. Army.
122 Method of Transporting Disabled Soldiers in the Field on a Regulation Litter, Attached to a Saddle, Using Only a Mounted Soldier's Equipment. G. P. Reed, U. S. Army.

August.

123 *Treponema Pertenuis (Castellani) of Yaws and Experimental Production of the Disease in Monkeys. P. M. Ashburn and C. F. Craig, U. S. Army.
124 Report of Four Operations on the Stomach. L. L. Williams, U. S. P. H. and M. H. Service.
125 Disabled Foot in the Military Service and Its Diagnosis by the Use of the Skiagraph. G. H. Richardson, U. S. Army.
126 Autointoxication. W. F. Waugh, Chicago.
127 Improvised Horse Litter for Two Patients. G. M. VanPoole, U. S. Army.
128 Military Medical Service of Sovereign Order of Knights of Malta in the Austro-Hungarian Army. S. Steiner, Austria.

123.—Essentially the same article by these authors appeared in the *Philippine Journal of Science*, October, 1907, and was abstracted in THE JOURNAL, Feb. 29, 1908, p. 728.

Virginia Medical Semi-Monthly, Richmond, Va.

August 7.

129 Pernicious Anæmia. W. S. Gordon, Richmond.
130 Bier's Hyperemia in Surgery. H. H. Trout, Roanoke, Va.
131 Tetanus—Its Prevention and Treatment. J. H. Underwood, Woodbury, N. J.
132 Electrodiagnosis. F. K. T. Warwick, Richmond.
133 Principles of Surgery. S. McGuire, Richmond.

Annals of Otology, Rhinology and Laryngology, St. Louis.

June.

134 Surgery of the Facial Nerve. J. C. Beck, Chicago.
135 Operation for Thrombosis of the Sigmoid Sinus and Internal Jugular Vein of Otitic Origin. F. Allport, Chicago.
136 Treatment of the Infective Labyrinthitis After Fifteen Years' Experience. A. Jansen, Berlin, Germany.
137 Pathology and Bacteriology of Suppurative Diseases of the Temporal Bone. E. de W. Wales, Indianapolis.
138 Operation for Brain Abscess of Otitic Origin. J. A. Stucky, Lexington, Ky.
139 Causation of the Suppuration of the Temporal Bone. W. E. Sauer, St. Louis.
140 Report of Atypical and Typical Cases of Sinus Thrombosis Complicating Mastoiditis. W. R. Dabney, Marietta, Ohio.
141 Diagnosis and Treatment of Suppuration of the Labyrinth. R. B. Canfield, Ann Arbor, Mich.
142 Chondroma and Osteoma in the Faucial Tonsils. L. N. Grosvenor, Chicago.
143 Developmental Absence of the Outer Right Sphenoidal Wall Occupied by a Vein Communicating Directly with the Cavernous Sinus. Operative Fatality and Autopsy. F. P. Emerson, Boston.
144 Case in which Deficient Cerebration was a Prominent Symptom in Chronic Purulent Otitis Media: Cure by Radical Mastoid Operation. D. W. Layman, Indianapolis.
145 Treatment of Intumescent Rhinitis by a Submucous Method. H. Horn, San Francisco.

Journal of Outdoor Life, Trudeau, N. Y.

August.

146 New Method of Tuberculosis Prevention. L. Veiller, New York.
147 *Choice of Occupation for Tuberculous Convalescents. A. E. Roussel, Philadelphia.
148 Home Treatment of Tuberculosis. C. A. Robertson, Nashville, Tenn.

147. **Occupation for Tuberculous Convalescence.**—Roussel says that the statistics showing the distribution of the farming industries demonstrate that here is a class of work available to every one, and the supplemental work of the school gardens, vacant lots associations and the sanatoria farm colonies proves conclusively that in this direction only can the consumptive find economic relief—first, in that he is independent of everything but meteorologic changes; second, that he may not worry about a market, as the home consumption of his products is a certainty. This alone is a great gain. When we consider the close connection between improper and insufficient food and the disease there seems to be no argument. The allied industries, the rustic crafts, etc., already enumerated should also be borne in mind. He believes that work as a street car conductor or itinerant merchant, peddler, book agent, insurance agent, etc., if in these latter rôles there is not too much walking, could be assumed by such patients with safety and profit. The keynote of this entire subject is outdoor employment, and it is with the hope that this may be added to the propaganda against tuberculosis that this essay is written.

Journal of the Arkansas Medical Society, Little Rock.

July.

149 The State Board. M. Fink, Helena, Mont.
150 The Necessity of a State Sanitarium for the Treatment of Tuberculosis. C. E. Witt, Little Rock.
151 Public Health and Vital Statistics. G. M. D. Cantrell, Little Rock.

West Virginia Medical Journal, Wheeling.

July.

152 Annual Address, West Virginia State Medical Association. F. Howell, Clarksburg.
153 Tuberculosis Sanitarium for West Virginia. G. A. MacQueen, Charleston.
154 Piece of Steel in the Eye Seventeen Years. J. L. Dickey, Wheeling.

Northwestern Lancet, Minneapolis.

August 1.

155 *Disease of the Cerebral Vessels, with Its Problem in Diagnosis. W. A. Jones, Minneapolis.
156 Tuberculin in Pulmonary Tuberculosis. G. D. Head, Minneapolis.

August 15.

157 "Pollinosis," or Hay Fever. F. C. Todd, Minneapolis.
158 Four Cases of Hypernephroma. E. L. Tuohy, Duluth, Minn.
159 Home Treatment of Pulmonary Tuberculosis. J. W. Bell, Minneapolis.
160 Treatment of Exophthalmic Goiter. H. Wiedow, Worthington, Minn.
161 Chronic Infectious Metritis. C. O. Cooley, Madelia, Minn.

155.—This article was published in THE JOURNAL, July 18, 1908, p. 179.

Western Medical Review, Omaha, Neb.

July.

162 Static Electricity and Its Therapy. F. A. Wells, Kenesaw, Neb.
163 Movable Kidney—When to Operate. A. C. Stokes, Omaha, Neb.
164 Treatment of Eclampsia. C. R. Watson, Sumner, Neb.
165 Adding a Grain of Salt to Professional Ethics. C. L. Alger, Leigh, Neb.

Advanced Therapeutics, New York.

July.

166 Roentgen Dermatitis: Its Prevention and Treatment. M. K. Kassabian, Philadelphia.
167 The Climatotherapy of Tuberculosis: Considered on Physical Rather than Bacillary Grounds. C. Denison, Denver, Colo.
168 Cancer and its Treatment by Cataphoric Sterilization. G. B. Massey, Philadelphia.

Detroit Medical Journal.

July.

169 Diagnosis and Treatment of Hemorrhoids. L. J. Hirschman, Detroit.
170 The Use of Plaster-of-Paris in Surgery. W. E. Blodgett, Detroit.
171 Catgut Prepared with Collargolum and Argyrol. T. R. MacClure, Detroit.
172 Chronic Laryngitis. E. L. Shurly, Detroit.

Journal of Ophthalmology and Oto-Laryngology, Chicago.

July.

173 Spontaneous Exenteration of the Mastoid Resulting from Acute Otitis Media. A. H. Andrews, Chicago.

The Providence Medical Journal.

July.

174 *Some Sanitary Problems. C. V. Chapin, Providence, R. I.
175 Digestive Disturbances in Infancy Due to Overfeeding of Fat. W. H. Jordan, Providence.
176 Two Cases of Edebohls' Operation of Decapsulation of the Kidneys for "Bright's Disease." H. Terry, Providence.

174.—Abstracted in THE JOURNAL, July 25, 1908, p. 342.

The Alabama Medical Journal, Birmingham.

July.

177 Goiter. C. H. Mayo, Rochester, Minn.
178 Direct Laryngoscopy, Tracheobronchoscopy and Esophagoscopy. J. H. Abraham, New York.
179 Postpartum Hemorrhage. J. I. Reid, Aldrich, Ala.
180 Pneumococcus Empyema—Résumé of Twenty Operative Cases. J. F. Oechsner, New Orleans.
181 Jaundice and Its Significance. S. Harris, Mobile, Ala.
182 Why Should Exact Hygiene be a Negligible Factor in Sick Room? J. D. Haecock, Birmingham.

Atlanta Journal-Record of Medicine.

July.

183 The Physician and His Relation to Society. J. C. Olmsted, Atlanta.
184 Review of the Work on the Appendix. W. Jones, Atlanta.
185 Pyelitis in Pregnancy. F. G. Hodgson, Atlanta.
186 Nervous Disease Caused by Alcoholic and Metallic Poisoning. J. C. King, Atlanta.
187 Higher Medical Education. E. R. Anthony, Griffin, Ga.
188 Outdoor Life for the Prevention and Cure of Disease. P. Paquin, Asheville, N. C.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London.

August 15.

1 Opium Habit and Morphinism. D. Duckworth.
2 Traumatic Enophthalmos. H. P. Dunn.
3 Case of Kala Azar. D. G. Marshall.
4 Malignant Disease of the Stomach Associated with Malignant Disease of the Glands Above and Behind the Inner Extremity of Each Clavicle. H. Morris.
5 *Observations on the Phagocytosis Occurring in Human Blood Serum when Mixed *in Vitro* with Horse Serum. S. G. Shattock and Leonard Dudgeon.
6 Excision of the Tonsil: Its Operation. H. Upcott.
7 Treatment of Immature Cataract. H. Smith.
8 Renal Calculi Nephrolithotomy; Subsequent Nephrectomy on Account of Hemorrhage. H. A. Lediard.
9 Vesical Calculus, the Nucleus of which was a Revolver Bullet. C. F. Lassalle.
10 Treatment of Spina Bifida by Drainage of the Cerebral Subdural Space. P. Paterson.

5. **Phagocytosis.**—Shattock and Dudgeon state that seeing that the administration of normal horse serum either by subcutaneous injection or by the mouth is followed by a rise in the opsonic value of the blood in human beings, it becomes a matter of interest to ascertain how this result is brought about. They consider certain possibilities in the form of the following questions and give in detail the results of their experiments: 1. Does horse serum act simply by supplying "common" or non-specific opsonins directly to the patient's blood? 2. Does horse serum act by supplying agglutinin, which brings about a "precipitation" of the micro-organisms on the leucocytes and so increase the phagocytosis independently of any increase in opsonin? 3. Does horse serum activate normal human serum so as to render the latter of higher opsonic value? 4. Does horse serum activate the serum of a patient suffering from an infective disease so as to render the latter serum of higher opsonic value (a) by simple admixture, (b) by the intermediary action of the patient's cells on the mixture? They conclude that the opsonic value of normal horse serum is decidedly lower than that of normal human serum or than that of patients suffering from chronic pulmonary tuberculosis. There is nothing noteworthy, they state, in the behavior of horse serum as studied by saturation with deopsonizing agents. They found that saturation with either *Staphylococcus pyogenes aureus* or *Bacillus coli communis* considerably reduces the phagocytosis toward both these micro-organisms. Saturation with human red blood has a somewhat similar effect in regard to both of the micro-organisms named. Horse serum does not increase phagocytosis by reason of the agglutinin it contains, as distinguished from its opsonin, for heating the serum to 60 C. (which removes the opsonin but leaves the agglutinin) so markedly reduces the phagocytosis that this possible factor is negligible. The admixture of horse serum to normal human serum *in vitro*, after incubation, does not raise the opsonic value of human, but, on the contrary, reduces it. The admixture of horse serum to a patient suffering from chronic pulmonary tuberculosis does not, after incubation *in vitro*, raise the opsonic value of the tuberculous serum. The admixture of horse serum to the serum of a patient suffering from chronic pulmonary tuberculosis does not, after incubation *in vitro*, and allowing the immune cells to work in the mixture, raise the opsonic value of the tuberculous serum.

British Medical Journal, London.

August 15.

11 *Pyopericardium in Children Under Twelve Years of Age. F. J. Poynton.
12 Pneumonia in Children. G. H. M. Dunlap.
13 *Physiologic Antagonism Between Aconite and Belladonna. H. Speirs.
14 New Apparatus for Chloroform Anesthesia. N. H. Alcock.
15 Zinc Ionization in Chronic Urethritis. P. C. Fenwick.

11. **Pyopericardium in Young Children.**—Poynton declares that fortunately for our reputations this is rather a rare disease, though it is an interesting and difficult clinical one. In young children the condition may occur in a general pyemia as a sequel to a local infection, complicating, for example, suppurative otitis media, osteomyelitis, or septic wounds. In such cases the physician must be prepared to find multiple abscesses in various parts of the body. Under these circumstances, pericarditis is a deadly complication, and although it is well to have made the diagnosis, it is only seldom that any treatment is of use. Poynton discusses at length the symptoms and diagnosis, and states that the most common errors are: 1. Mistaking the half truth for the whole. Suppurative pericarditis may never occur to the physician; he may diagnose empyema, or pneumonia and empyema. If an empyema has been drained, he suspects a loculus or retention of pus. In case of bilateral empyema he may ascribe all the symptoms to that cause. 2. Another pitfall is tuberculosis. This mistake, Poynton asserts, is liable to be made in the case of a marasmic child who has had subacute pneumonia. The failure in recovery, the wasting and breathlessness, together with the signs in the lungs, are ascribed to pulmonary tuberculosis and the consequent toxemia. The most pronounced signs of the pyopericardium he gives as:

1. Progressive muffling of the heart sounds synchronous with enlargement of the cardiac area, together with marked percussion dullness over the pericardium and sometimes posteriorly in the interscapular region. Tubular breathing or absent breath sounds may also be noted in the interscapular region.
2. A rapid and extensive increase of the cardiac dulness upward toward the left clavicle. I have seen a case in which there was absolute dulness reaching to the left clavicle, and the post-mortem examination showed that the upper lobe of the left lung was collapsed and pushed backward by the distended pericardial sac.
3. The pear-shaped outline of a distended pericardium.
4. The abrupt transition from the dulness of fluid to resonant lung tissue.
5. A wavy and diffuse pulsation to the left of the sternum.

He is rather pessimistic as to treatment. The prognosis, he states, is exceedingly grave and unless a serum can be obtained which will combat general pneumococcic infections, improvement in methods of diagnosis will not help in treatment. Surgical intervention, he believes, offers the best chance of success, and a certain number of cases of recovery are on record following operation. The best results are to be expected in older children (over 12) in whom there is considerable effusion of liquid pus. Inflammatory changes in the anterior mediastinum and great thickening of the pericardium itself make it difficult to tell when the pericardial cavity has been opened, and it is not surprising that now and again a pericardial cavity has been thought to be opened and a drainage tube introduced into the mediastinal anterior tissues.

13. **Physiologic Antagonism Between Aconite and Belladonna.**—Speirs reports the case of a patient who took by mistake half an ounce of a liniment, composed of chloroform, aconite and belladonna. The patient took 53.3 grains of aconite root, which represents ¼ grain of aconitine of which 1/16 grain has been known to be fatal. He also swallowed 40 minims of fluid extract of belladonna (B. P.), which is equal to 0.3 grain of the total alkaloids. This would represent approximately thirty times the official dose of atropin. Of chloroform he took 30 minims, about eight times the official dose. The interest in the case lies in the fact that the lethal effect of a large dose of aconite was abolished by the simultaneous action of a large dose of belladonna. Muscular weak-

ness, numbness of the extremities and tendency to complete collapse were the only purely aconite symptoms observed. Salivation, which is usually present in aconite poisoning, was absent, and the usually contracted pupil was overcome by the action of the atropin. Finally, the intensely depressant action of aconite on the central nervous system was counteracted by the stimulating influence of the belladonna. Spiers declares that the obvious lesson to be drawn from the case is the great value which should be attached to hypodermic injections of atropin in aconite poisoning.

Medical Press and Circular, London.

August 12.

16 Visual and Ocular Defects Associated with General Disease. J. Taylor.
17 Calmette's Ophthalmo-Reaction for Tuberculosis. F. P. Weber.
18 *Examination of Sausages and Their Hygienic Preparation. W. G. Savage.
19 Artificial Respiration. T. P. C. Kirkpatrick.

18. Sausages.—Savage demands the examination of sausages, of which he describes the composition, investigates the bacterial content and considers the hygienic condition of the premises on which they are prepared. He urges that the amount of fat, proteids, starch, water, etc., may be ample from the standpoint of nutrition, but sanitary requirements demand a bacteriologic examination of contents and casings for *Bacterium coli* and other micro-organisms, a chemical examination for various preservatives and a microscopic examination for added starches. He describes the methods of examination for the different substances.

Glasgow Medical Journal.

August.

20 *Gangrene of the Extremities After Pneumonia. A. N. McGregor.
21 *Experimental Investigation into the Function of the Thymus. A. MacLennan.
22 Case of Chorioepithelioma. G. B. Marshall.
23 Rare Pelvic Tumor in a Child of Four Years. T. Kay.

20. Gangrene After Pneumonia.—McGregor reports a case of gangrene of the fingers of the right hand consequent on pneumonia. He discusses the subject of pneumonic gangrene, closely analyzing the literature, and says that the following factors in pneumonia may determine gangrene of the extremities: 1. Pneumococci in the blood, probably in all cases, and with marked agglutinating power of the blood which increases up to the crisis and then gradually diminishes. 2. The weakness due to the acute fever, and in particular the cardiac asthenia, which is most marked immediately after the crisis. 3. The occurrence of pneumococcic endocarditis, even in the earlier stages of pneumonia, sometimes resulting in the formation of clots or vegetations, which, passing into the arterial circulation, become emboli. 4. The invasion of the veins by pneumococci causing phlebitis and thrombosis, sometimes followed by pulmonary embolism. 5. A probably similar invasion of the intima of the arteries resulting in arterial thrombosis. 6. Thrombosis of arteries following embolism, in which the clot formation extends to some distance and shuts off the collateral circulation.

21. The Thymus.—As the result of an experimental investigation MacLennan arrives at the following conclusions:

1. The thymus may be a lymphatic gland, but it is so specialized as to be virtually something more; it is one of the series of glands which by an internal secretion regulate the various functions of the body.

2. The gland is really an accessory one, for its function can be taken up by others. Simultaneous extirpation of the spleen and thymus invariably results in death. One would infer, therefore, that along with its other manifold functions the spleen can carry on those of the temporary thymus. Extirpation of the thymus does not give rise to hypertrophy of adenoid tissue elsewhere.

3. The function of the gland is temporary, for as growth advances the gland atrophies, though in man it never quite disappears till after puberty. There are cases on record, however, in which there has been no thymus.

4. The thymus and the thyroid are closely associated developmentally, anatomically, physiologically and pathologically. The results of experiments have shown that the thymus is unnecessary to the economy when the thyroid is gone, and when the thymus is removed less thyroid suffices. The importance of this relationship is apparent in certain diseases. An enlarged thymus is credited, rightly in some cases, with being the cause of death in the so-called status lymphaticus, and after removal of the thyroid the enlarged thymus gives rise to the same conditions as produce the so-called thymus death. Therefore, when thyroidectomy is deemed necessary in exophthalmic goiter MacLennan recommends that the thymus be first sought for, and, if enlarged, removed as a preliminary to the thyroidectomy.

5. In certain other diseases, notably laryngismus stridulus, thymusectomy has given good results. The result of the extirpation is not mechanical, but due to the removal of the internal secretion of the thymus. In this disease thymusectomy offers some hope of cure. In cretins, thymusectomy, by reducing the necessity for thyroid secretion, will be beneficial, and ought to be tried.

6. In children who present a fulness over the suprasternal notch during expiration, straining or coughing, special care ought to be taken during surgical anesthesia, which ought to be of the lightest possible.

Journal of Obstetrics and Gynecology of the British Empire, London.

July.

24 *Rupture of the Uterus and Its Treatment. J. M. M. Kerr.
25 Congenital Umbilical Hernia Successfully Treated by Operation. A. N. McGregor.
26 Primary Carcinoma of the Fallopian Tube. J. E. Gemmell.
27 Bilateral Tuberculous Salpingitis. F. J. McCann.

24. Rupture of Uterus.—Kerr says that while it is true that rupture of the uterus is ordinarily a disgrace to the obstetric art, there are exceptions, and it may occur even during pregnancy. He discusses rupture during pregnancy and after protracted labor, and then rupture during early labor, which he regards as holding etiologically a middle point between the two others. He further discusses the varieties of rupture, symptomatology and diagnosis, and prognosis—which last, he says, is much more favorable to-day than when the condition was treated expectantly. Finally, he deals with the treatment, both prophylactic and active. He especially warns the accoucheur against the danger of performing vaginal operations, such as turning, etc., with the woman only partially anesthetized.

The Practitioner, London.

August.

28 Diagnosis of Iliac Swellings. W. H. Battle.
29 How to Secure Mental Health and How to Prevent Mental Breakdown. R. Jones.
30 *Surgical Treatment of Incompletely Descended Testis. L. B. Rawling.
31 Experiments in the Treatment and Prevention of Infection in Typhoid. A. K. Gordon.
32 Review of Recent Work in Gynecology. H. Playfair.
33 Treatment of Trachoma. A. W. Ormond.
34 Review of Recent Literature on Diseases of the Nervous System. H. C. Thomson.
35 *Major Operations in Treatment of Puerperal Sepsis. F. E. Taylor.
36 *Symptoms and Condition of the Blood in Pernicious Anemia J. G. Taylor.

30. Incompletely Descended Testicle.—Rawling discusses the various operative measures and, with regard to the treatment of a patient with one incompletely descended testis, says that the condition may be watched up to about the seventh year of life, after which operation should be advised in case of failure in scrotal descent. After full exposure and division of cremasteric fibers and all restraining bands, and removal of peritoneal process, the operator will be enabled to gauge the possibility of scrotal placement. If this is apparently impossible, the organ should be removed, a radical proceeding, no doubt, but one that is apparently indicated by the almost inevitable failure of all palliative measures, and by the absence of any physical or mental alterations in those patients in whom such a course had been adopted. With regard to the question of double incomplete descent, double abdominal replacement has been advocated, the hernial protrusion being cured and the canal closed up. With this view he does not agree, for two main reasons: 1. The abdominally replaced or-

gans almost certainly lose their spermatogenetic powers. 2. The inguinal, pubic and pubo-scrotal organs retain, in from 40 to 50 per cent. of cases, some spermatogenetic power, at any rate up to about the age of 30 or 40, and, so far as one is able to state, the inguinal testicles retain this power longer than the pubic or high pubo-scrotal varieties. In cases of double incomplete descent, therefore, operative measures should be carried out well before the age of puberty, the canal exposed, the testicle delivered, and the hernial protrusion cured. If the cord is fairly long, the testicle should be sewn to the scrotum. In other circumstances it is preferable that the organ should be allowed to remain in the inguinal canal. The usual disadvantages of such testicular position will be experienced, but the patient will, at any rate, have the advantage of possessing some power of reproduction if he marries early.

35. **Puerperal Sepsis.**—Taylor analyzes the literature of major operations that have been performed for puerperal sepsis under three headings: 1, hysterectomy; 2, ligature of pelvic veins for thrombosis; 3, abdominal or vaginal section for puerperal peritonitis.

36. **Pernicious Anemia.**—Taylor discusses the symptoms and condition of the blood in pernicious anemia, and says that the recognition of idiopathic pernicious anemia in any case with obscure symptoms, rests on the following blood changes: Reduction in the number of red corpuscles, with a high color index, and leukopenia; the presence of megalocytes in large numbers, and of normoblasts and megaloblasts; among the white corpuscles, a lymphocytosis, usually of over 40 per cent. and a not greater percentage than 4 of eosinophiles. Lastly, he urges that blood examinations should be undertaken as a part of routine work almost as frequently as examination of the urine.

Archives Générales de Médecine, Paris.

July, LXXVIII, No. 7, pp. 401-464.

37 Accidents Due to Antiseptics in Surgery. (Accidents dus aux antiseptiques en chirurgie.) S. Mercadé.
38 *Modern Treatment of Gout. (Traitement actuel de la goutte.) L. A. Amblard.
39 Diagnostic Importance of Inequality of the Pupils in General Paralysis. (Inégalité pupillaire dans la paralysie générale.) A. Rodiet.

38. **Treatment of Gout.**—Amblard outlines a course of treatment based on recent research which has apparently demonstrated that uric acid is derived from the xanthin bases and that both these and thymic acid are derived from nucleic acid, and that, normally, the thymic acid keeps the uric acid dissolved. The diet should be regulated to avoid food containing much purins, and he gives Hall's tables showing the percentage in purin of the different articles of food. They show that white meat contains as much or nearly as much purin as dark meat, and that beans and oatmeal also contain large amounts. As high temperature destroys the combinations of thymic acid with the purin bases, by setting them free, it follows that meat too well cooked is less desirable than rare meat. Among the articles allowed are milk, butter and fresh cheese, eggs and a little red meat once a day. Among the few drugs which may be found useful are the salicylates and alkaline drugs. Courses of mineral waters are especially useful, not only for the gouty but for their children, as a preventive measure, with a suitable diet and moderate exercise. He quotes Mathieu to the effect that children inherit from their parents not only an organic predisposition, but their bad habits of general hygiene and eating; they also inherit their fortune, and thus continue to live in the same environment and under the same condition in most cases. He warns that many disturbances formerly attributed to gout are in reality due to latent arteriosclerosis and uremia. Continued traces of albumin in the urine warn of the necessity of preventive measures to arrest the progress of latent arteriosclerosis. It is important, however, to remember that excessively strict directions may cause them to be followed to an exaggerated extent or to be disregarded altogether.

Presse Médicale, Paris.

August 8, XVI, No. 64, pp. 505-550.

40 Remote Results of Appendicectomy in Chronic Appendicitis. A. Broca and F. Barbet.
41 *Dermatitis of Workers on Cement. (La "gale" du ciment.) R. Martial.

41. **Cement Dermatosis.**—Martial has observed a number of cases of a skin affection in men working in cement. Pruritus, swelling and a papulous eruption, with a tendency to lichen and eczema, are the main features. The French call it "cement workers' itch." He advises rubbing lanolin or wax on the hands and forearms before going to work, and keeping the shirt buttoned at the neck. Some firms supply cotton gloves and protecting goggles to their workmen, especially those working in tunnels, etc.

Semaine Médicale, Paris.

August 12, XXVIII, No. 33, pp. 385-396.

42 *Paroxysmal Excessive Secretion of Intestinal Mucus. (L'entéromyxorrhée nerveuse.) L. Cheinisse.

42. **Paroxysmal Excessive Secretion of Intestinal Mucus.**—THE JOURNAL, Dec. 7, 1907, page 1961, summarized a case of what Cheinisse calls isolated nervous enteromyxorrhea. He here reviews the literature on the subject and emphasizes the importance of differentiating this purely nervous form, distinguished by the absence of pain and inflammation, the excessive discharge of thin mucus being evidently a nervous phenomenon. The absence or scantiness of formed elements in the discharge is a prominent feature. Treatment should be addressed to the nervous predisposition and the accompanying constipation. In Richartz' case the affection had lasted for three years, but yielded at once to vigorous purging. This left the intestine at rest afterward, and its excitability gradually subsided to normal, hastened by astringent enemas.

Berliner klinische Wochenschrift.

August 10, XLV, No. 32, pp. 1477-1516.

43 *Pathology of Tumors in Cerebellum. (Kleinhirngeschwülste.) M. Martens and W. Seiffer.
44 Localization of Motor Aphasia. N. v. Mayendorf.
45 *Suprasymphyseal Cesarean Section. (Zum suprasymphysären Kaiserschnitt.) L. Blumreich.
46 Schütz's Law of Pepsin Digestion. (Ist das Schütz'sche Gesetz der Pepsinverdauung ungültig?) K. Meyer.
47 Unreliability of Serum Diagnosis of Syphilis with Urine. (Verwendung von Urin zur Wassermann'schen Syphilisreaktion.) F. Hoehne.
48 *Technic of Serum Diagnosis of Syphilis. (Zur Technik der Serodiagnostik der Syphilis.) M. Stern.
49 Microsporon Affection of Scalp. (Mikrosporieerkrankung der behaarten Kopfhaut.) B. Chajes.
50 Dyspnea of Gastric Origin. (Eigenartige Dyspnoe gastrischen Ursprunges.) G. Galli.
51 Occupational Accidents of Telephone Girls. (Betriebsunfälle der Telephonistinnen.) M. Bernhardt. Commenced in No. 31.

43. **Tumors in the Cerebellum.**—Martens and Seiffer report a case of multiple glioma on the ependyma causing symptoms as from a tumor in the cerebellum. The largest glioma was located in the fourth ventricle and was responsible for the clinical manifestations observed. The patient was a boy of 13, healthy until he had been hit on the head with a stick three months before. There were no appreciable symptoms, but a week later headache developed, so severe that he soon was unable to attend school. Vomiting, vertigo when doing gymnastic exercises, and diplopia were observed, with some exophthalmos. The patient survived only a few hours the operation for removal of the assumed tumor in the cerebellum. This diagnosis was based on the objective findings, which are described in detail, all pointing to an organic affection of the cerebellum. Since Virchow described this ependyma glioma in 1858 scarcely a dozen cases have been reported. A history of trauma is evident in nearly every case. The multiple localization renders the affection inoperable, resembling central neurofibromatosis in this respect.

45. **Suprasymphyseal Cesarean Section.**—Blumreich believes that this new technic is destined to supplant the classical Cesarean section, but he does not approve of it for infected cases. In a case reported he followed the transperitoneal technic, and in this article emphasizes its advantages. It avoids danger of hemorrhage and of injury of urethra or bladder. Complications of the puerperium with thrombosis occur fifty times as frequently with sawing operations on the pelvis as with other deliveries, but nothing of the kind has hitherto been reported in connection with suprasymphyseal Cesarean section. The region of the uterus incised is the least vascular, and the child is delivered and the placenta follows—both along physiologic lines. The patient can get up much earlier than with other technics.

48. **Serum Diagnosis of Syphilis.**—Stern mentions a few technical points which he has found of importance in his research on 2,500 sera. For example, he states that the proportion of complement in the serum of different guinea-pigs varies within a wide range. He has found it necessary to test the serum in this respect before using it for application of the complement. He also remarks that the intensity of the positive reaction is immaterial.

Centralblatt f. d. Grenzgebiete der Medizin und Chirurgie, Jena.

August 6, IX, No. 14, pp. 529-560.

52 *Surgical Treatment of Pericarditis and Chronic Adhesive Mediastino-Pericarditis. (Cardiolysis, etc.) E. Venus. Commenced in No. 11.

52. **Operative Treatment of Pericarditis.**—Venus has traced the history of operative treatment of pericarditis back to Riolanus in 1653. He summarizes about 300 articles on the subject, and tabulates the details of 110 cases in which treatment was by puncture alone, 51 by incision without resection of ribs, and of 36 by pericardiotomy after resection of ribs—a total of 178 cases of surgical intervention on account of pericarditis. He warns that the results can not be estimated by statistics, as the affection is seldom primary. Of the total 72, or 40.45 per cent., were cured and 6, or 3.37, were improved. Puncture is allowable only when there is no suppuration, which can be determined by an exploratory puncture. In case of suppuration, resection of ribs and pericardiotomy only can be considered. After pericardiotomy the pericardial cavity should be carefully rinsed with salt solution and extensively drained. In case of chronic adhesive mediastino-pericarditis Brauer's technic of cardiolysis—osteoplastic resection of the wall of the thorax to release the adherent pericardium—has proved a life-saving operation and is evidently destined to play a prominent part in the treatment of this affection. The signs of failing compensation subside, diuresis is increased, the albumin vanishes from the urine, while the ascites grows less and the liver and spleen become smaller. Patients who were incapacitated and bedridden were restored to comparative health and could resume their occupations. He gives the full details of the 17 cases in which cardiolysis has been performed to date. The effect was invariably favorable. A complete cure can not, of course, be expected, from the nature of the affection, but by relieving the heart the general health is notably benefited.

Deutsche medizinische Wochenschrift, Berlin.

August 6, XXXIV, No. 32, pp. 1377-1416.

53 Pathology of Urine Concrements. (Pathogenese der Urolithiasis.) W. Ebstein.
54 *Recent Research on Experimental Diabetes. G. Zuelzer, M. Dohrn and A. Marxer.
55 Action of Glutaric Acid on Phloridzin Diabetes. (Glutarsäurewirkung auf den Phloridzindiabetes.) G. G. Wilenko.
56 Traumatic Paralysis of Cervical Sympathetic. (Traumatische Lähmung des Halssympathicus.) Siebold.
57 Operative Treatment of Perforation of Stomach. (Operative Behandlung der Magenperforationen.) F. Michelsson.
58 Steam Cauterization of Uterus. Indications and Limitations. (Leistungsfähigkeit der Vaporisation in der Praxis und ihre Grenzen.) L. F. Schaller.
59 Intestinal Parasites Locating Outside of Intestine. (Darmparasiten im Körper ausserhalb des Darmes.) W. Rimpau and W. Loewenthal.
60 Homogeneous Radiation in Therapeutics. (Homogenbestrahlung.) F. Schultz.

54. **Treatment of Diabetes on New Basis.**—Zuelzer and his associates have succeeded in demonstrating an antagonistic action between the hormon of the pancreas and the hormon of the adrenalins. They describe extensive experimental research which seems to show that the adrenalin plays the active part in the mobilization of the sugar metabolism, both in physiologic conditions and in pancreatic diabetes. Among the experiments related on which this assumption is based are some in which normal blood was made to circulate through the surviving kidney, inducing a slight increase in sugar. When the same procedure was done on the liver of a dog whose pancreas had been removed, the sugar increased by from 50 to 70 per cent.; the increase in sugar was even more pronounced when the liver was from a dog with suprarenal diabetes. They assume that in the liver the adrenalin and the hypothetic internal secretion of the pancreas become combined, and that their joint action keeps the elimination of sugar within normal bounds. In pancreas diabetes the lack of the pancreatic secretion, and thus the predominance of the adrenalin, explain the increase in the sugar. They review a number of experiments undertaken by other investigators for other purposes, all of which confirm the possibility of the antagonistic action of pancreas extract and suprarenal substance. From these premises they proceeded to use a pancreas extract in treatment of suprarenal diabetes. When both the pancreas and the suprarenals are incapable of functioning, no diabetes will follow. After pancreatectomy they ligated the veins from the suprarenals, thus shutting them off from the circulation, and no diabetes followed. Zuelzer has extirpated more than a hundred pancreases, and pronounced glycosuria invariably followed, except in these cases in which the veins from the suprarenals had been ligated. All their research tends to prove that adrenalin has physiologically the task of mobilizing the sugar from the liver, and probably also from the other tissues. Lépine has recently reported a case of diabetes with sarcoma of the suprarenals. The excessive production of the suprarenal secretion was probably responsible for the diabetes. In conclusion are given the details of several clinical cases of diabetes in which marked benefit was obtained by injection of a pancreas extract to antagonize the excessive action of the adrenalin. In one very severe case the urine was freed from acetone and acetic acid and the sugar was reduced to traces after a single injection of the pancreas preparation. The effect lasted for four days, as also in the case of a boy of 6 with 4.8 per cent. sugar and large amounts of acetone and acetic acid. In another case a woman eliminated from 650 to 850 gm. sugar in an average of 18 liters of urine a day. The day after the injection of the pancreas hormon the amount of sugar dropped to 129 gm., the next day to 109 gm., and then it gradually returned to its former figure. Besides these severe cases others are mentioned in which a daily average of from 20 to 25 gm. sugar was reduced to 7.2 the first day, then to 2 gm. and then to zero for four days. At first they used the pancreas from the slaughter-house, that is, after death, but they found that this material was too weak. They had to use 10 gm. to neutralize the action of 1 mg. adrenalin; they now obtain the pancreas hormon in a different way, by which 0.2 gm. accomplishes the same results. The best technic for this production has not yet been worked out, but they are working along lines suggested by Pawlow's biologic research, using the living animal at the height of digestion and eliminating the toxic properties by removing the albumin.

Medizinische Klinik, Berlin.

August 9, IV, No. 32, pp. 1219-1256.

61 *Training for Obstetrical Practice. (Verwöhnung und Anpassung in der Geburtshilfe.) H. Sellheim.
62 Physiology and Pathology of the Play of the Pupils. (Pupillenspiel.) C. Hess.
63 Lumbar Puncture for Psychiatric Differentiation. (Lumbalpunktion in der psychiatrischen Diagnostik.) F. Chotzen.
64 Dietetic and Pharmaceutic Treatment of Epilepsy in Private Practice. A. Eulenburg.
65 *Meat Poisoning. (Zur Kasuistik der sogenannten Fleischvergiftungen.) L. Wachholz.
66 *Dietetic and Physical Treatment of Gout. (Gicht.) M. Hirsch.
67 Toxin and Antitoxin of Dysentery Bacilli. E. Schottelius.
68 Improved Technic for Romanowsky Blood Stain. (Panoptische Universalfärbung für Blutpräparate.) A. Pappenheim.

61. **Training for Obstetrical Practice.**—Sellheim discusses a number of points useful to bear in mind, and urges practical object lessons instead of too much didactic instruction. In his clinic (Tübingen) he has some rooms arranged like the bedroom in an ordinary farm-house or laborer's cottage. Nothing is provided except as the medical student demands it, and he is thus trained in the technic of transforming an ordinary bedroom into an aseptic lying-in room, with provisions for the convenience of the patient and her infant later. This supplies conditions such as the young practitioner is most liable to meet, and it has the further advantage of giving the woman a separate room for her ordeal. The only way to obtain confidence is to have the student conduct the childbirth himself, he says, under the direction of his chief, which has also the best stimulating effect on the rest of the class as spectators.

65. **Fish and Meat Poisoning.**—Wachholz reports five cases observed last year at Cracow, with autopsy findings. In two

cases the meat had been from a cow with anthrax; a man of 45 and his son, 12 years old, succumbed in less than three weeks to malignant pustule, but two other persons who ate freely of the meat escaped all disturbances. Anthrax bacilli were found in the blood of the heart, liver, spleen, etc., of the boy. The meat had been condemned and buried by the meat inspectors, but the man had dug up a piece and carried it home to boil. In another case a man died, with vomiting and diarrhea, two days after eating some fish. Autopsy five days later gave negative findings. Another patient was a large landed proprietor taking treatment at the Pasteur Institute, as he had been bitten by his dog, known to be rabid. Ten days later symptoms of fish poisoning developed after a fish dinner at the leading restaurant. He lived only four days. Autopsy findings were negative, as also inoculation of animals, showing that he had escaped hydrophobia.

66. **Treatment of Gout.**—Among the other measures which Hirsch has found effectual are the Bier hyperemia and hydrotherapy.

Münchener medizinische Wochenschrift.

August 4, LV, No. 31, pp. 1625-1672.

69 *Clinical Diagnosis of Pulmonary Arteriosclerosis. A. Posselt.
70 *Modifications in Nervous System After Stovain Anesthesia. W. Spielmeyer.
71 *Artificial Hyperemia of Brain in Incipient Arteriosclerosis. G. Galli.
72 *Results and Prospects of Cytologic Examination of Cerebrospinal Fluid. (Zytologische Untersuchung der Zerebrospinalflüssigkeit und deren Aussichten.) O. Rehm.
73 *Carrot Soup in Digestive Disturbances in Infants. (Karottensuppe bei Ernährungsstörungen der Säuglinge.) E. Moro.
74 Imperfect Absorption of Antitoxin from Rectum. F. Hamburger and R. Monti.
75 Operation for Recurrence of Carcinoma of Uterus. (Rezidivoperation nach Uteruskarzinom.) O. v. Franqué.
76 Diazo Reaction of Normal Urine. (Diazoreaktion des normalen Harns.) R. Engeland.
77 Stomach Disturbances in Masturbators. (Magenstörungen bei Masturbanten.) A. Siegmund.

69. **Clinical Diagnosis of Sclerosis of the Pulmonary Artery.**—Posselt has encountered ten cases of sclerosis of the pulmonary artery during the last fifteen years. In three cases it was an autopsy surprise; in the others a presumptive diagnosis was made, with positive differentiation in one case. The subjective and clinical signs and symptoms are mostly referable to the obliterating endarteritis of the smaller vessels, while the physical signs reveal the involvement of the main trunk. A history of severe infection in the past is frequent, especially smallpox, and accompanying aortic sclerosis with insufficiency or mitral stenosis is the rule. Striking cyanosis is an early symptom, while there is little if any dyspnea and edema. Intermittent dysphagia is common, but there seems to be no tendency to drumstick fingers. Another symptom is repeated bleeding from the lungs, without infarcts. There is an area of dullness at the upper left margin of the sternum and vicinity, sensitive to pressure and percussion, and the heart dulness extends unusually far toward the right. When these signs accompany primary mitral stenosis, pulmonary arteriosclerosis is probable, especially when the diastolic thrill and presystolic murmur gradually move upward toward the pulmonary ostium, and the Roentgen rays give characteristic findings.

70. **Changes in the Nervous System After Stovain Spinal Anesthesia.**—Spielmeyer has had opportunity to examine the central nervous system in thirteen cases after spinal anesthesia. The patients succumbed to peritonitis, sepsis or cachexia in from two to eight days after the spinal anesthesia, with the exception of one case, in which the anesthesia was evidently responsible for the fatal outcome, the patient dying in coma forty hours after the injection. The neurohistologic findings in these cases and in considerable experimental research showed degeneration in the motor ganglion cells of the anterior horn of the spinal cord. These motor elements seem to be especially susceptible to the action of stovain. The changes were observed in this class of cells high in the neck as well as low down, and in some the changes seemed to be irreparable. He adds that none of these changes were discovered in the cases in which the dose of 0.07 gm. (0.9 grains) stovain had not been surpassed. In the fatal case 0.12 gm. (1.7 grains) stovain had been injected; paralysis of the respiration was the first sign of trouble.

71. **Induced Hyperemia in Treatment of Cerebral Arteriosclerosis.**—In this communication from Baccelli's clinic at Rome, Galli reports excellent results from the Bier technic in treatment of 20 patients with incipient cerebral arteriosclerosis. His clinical and experimental experience has shown that the application of a constricting band to the neck reduces the pressure in the arteries while it increases that in the veins, and materially improves the conditions of the circulation in the vasa vasorum. This renders it improbable that the application can cause a rupture in an artery, although the pulse rate may increase by a few beats. In a number of cases he has obtained remarkable results; the vertigo and signs of mental debility vanished and the patient felt very much better. This treatment is particularly beneficial in that form of incipient arteriosclerosis known as neurasthenia, but which resists all treatment addressed to the latter. He applies the constricting band daily for from half an hour up to two hours.

72. **Cytology of the Cerebrospinal Fluid.**—Rehm has been studying this subject at Kraepelin's clinic and in Nonne's hospital service, with 650 lumbar punctures. The results have convinced him that general medicine can derive as much benefit from cytologic examination of the cerebrospinal fluid as from that of the blood, and that the method should not be abandoned to psychiatry and neurology alone. Less than ten cells in the cubic millimeter is the normal range.

73. **Carrot Soup for Sick Infants.**—Moro found that newly born guinea-pigs fed on cow's milk succumbed in a few days to acute digestive disturbances as a rule. The syndrome suggested the alimentary intoxication of infants. The symptoms can be arrested if the young are fed with sliced carrots or allowed to suckle the mother. He has applied this experience in treatment of infants suffering from digestive disturbances, and reports excellent results in 48 cases in which the infants were fed on carrot soup. He boils the carrots and passes them through the finest wire sieve, adding about 200 c.c. to one liter of meat broth made from 500 gm. beef and bones. The carrot soup is made fresh each day and represents from 235 to 260 calories to the liter. This supplies nourishment, while it causes complete transformation of the intestinal flora. The French also use an aqueous decoction of several kinds of vegetables, but this lacks the special properties which render the carrot soup so beneficial, as Moro describes in detail.

Therapie der Gegenwart, Berlin.

August, XLIX, No. 8, pp. 337-384.

78 *Treatment of Neurasthenia. (Neurasthenie-Behandlung.) A. Eulenburg.
79 Artificially Carbonated and Oxygenated Baths in Arteriosclerosis. (Sarasonsche Oxetbäder bei Arteriosklerose.) Schnütgen.
80 *Principles of Feeding the Sick. (Grundsätze der Ernährung für die Kranken-Küche.) W. Sternberg.
81 *Improvement of Peripheral Centripetal Neuron in Tabes by Frenkel's Exercise Therapy. (Verbesserung des peripheren zentripetalen Neurons bei Tabes dorsalis durch die Frenkelsche Uebungstherapie.) D. de Vries-Reilingh.
82 Stutterers in Business and in Court. (Der No. 51 des D. St. G. B. und das Stottern.) T. Hoepfner.
83 *Connection Between Diseases. (Krankheitszusammenhänge.) F. von den Velden.
84 Modern Views of Regeneration of the Blood and Their importance for Treatment of Blood Affections. (Blutregeneration und Therapie der Blutkrankheiten.) H. Hirschfeld.
85 Idiosyncrasy to Aspirin. E. Melchior.

78. **Treatment of Neurasthenia.**—Eulenburg's long article emphasizes that the end and aim of treatment of neurasthenia are the restoration of the patient to his normal capacities to enable him to fill his proper place in life. This requires systematic training, increasing and development of latent and reserve energy by methodical education and exercise. Rest and protection from excitation—however indispensable they may be at times—should be only the prelude or a brief episode in the treatment.

80. **Principles of Feeding the Sick.**—Sternberg remarks that the first principle of feeding is that the food must nourish. The subjective side of eating should be studied more, and modern medicine should aim to combine science and art, theory and practice, in this domain more than has been the rule hitherto.

81. **Influence of Exercise Therapy on Tabes.**—Reilingh reports a case in which the nerve conductibility was much reduced. He found that exercise therapy improved conditions in this respect; he is inclined to attribute the result to training of the peripheral centripetal neuron and presents arguments to sustain this view. Frenkel ascribes the benefit from exercise therapy to re-education of the coordination center, but the findings of the case reported, especially the interval between stimulus and reflex action, speak for a peripheral rather than for a cerebral process.

83. **Connection Between Diseases.**—This article reviews Riffel's tables showing the mortality in three generations of the entire population of several villages—4,000 souls. They show that a number of diseases which we never think of connecting with each other, in reality have certain relations. This can be better understood when it is seen how they develop on a common soil. The tables show, for instance, that cancer occurred almost exclusively in tuberculous families. The tuberculous families furnish 149 of the 165 pneumonia deaths; 44 of the 48 deaths at childbirth; and 25 of the 28 deaths from heart defects, and 48 of the 50 deaths from meningitis. Apoplexy, typhoid, gout, emphysema and asthma do not accompany tuberculosis, but seem to take its place in the second generation, the tuberculosis reappearing in the third generation.

Zentralblatt für Chirurgie, Leipsic.

August 8, XXXV, No. 32, pp. 961-992.

86 *Reduction of Size of Scar by Application of Iodin. (Jodpinselungen zur Erzielung schmaler Narben.) A. Schanz.

86. **Iodin to Reduce Size of Scar.**—Schanz has found that the least trace of a scar is observed when a wound, healing aseptically, has a very slight irritation on the surface. Probably this is owing to the hyperemia induced by the slight irritation. He accomplishes this result in an ideal manner by painting the wound with the tincture of iodin the third or fifth day after the operation. A single application is enough for a small wound, on well-nourished parts, but for larger wounds he applies the tincture every day for from two to five days. The edges of the wound under the influence of the iodin stick so close together that they heal without spreading, and the wound leaves no more trace than a needle scratch.

Zentralblatt für Gynäkologie, Leipsic.

August 8, XXXII, No. 32, pp. 1033-1080.

87 *Removal of Bilateral Diseased Adnexa by Transverse Fundal Excision. (Neue Methode der Exstirpation doppelseitig erkrankter Adnexe.) O. Beuttner.

88 The Nongravid Uterus Can Change Its Size in Response to Stimuli which Do Not Act Directly on It. (Der nicht schwangere Uterus kann selbst auf Reize hin, die ihn nicht direkt zu treffen brauchen, sein Volumen wesentlich verändern.) Id.

89 Two Cases of Puerperal Inversion of Uterus. A. Schönbek.

90 *What Can We Learn from After-History of Seven Cases of Reimplantation of the Ovaries? Pankow.

91 Triplet Pregnancy with Special Regard to Site of Placenta. (Drillingsschwangerschaft.) O. Jaeger.

92 Treatment of Abortion. (Zur Anwendung der Abortzange.) Hammerschlag.

87. **Fundal Extirpation of Adnexa.**—Beuttner regards Faure's technic for removal of the adnexa from within the uterus outward as a great advance, but he has modified Faure's method so as to permit retention of one of the ovaries. He gives an illustrated description of his method, with details of three cases in which he has applied it with fine effect. His method avoids all conflict with the bladder, and sacrifices only so much of the broad ligaments as is absolutely necessary for the removal of the diseased adnexa. After a transverse incision, according to Pfannenstiel, he incises the fundus of the uterus from side to side, cutting out a long oval wedge, extended on each side into the broad ligament to include the tubes and one or both ovaries. This retains Faure's principle of removing the adnexa from within the uterus. It has the still further advantage that wedge resection of the body of the uterus is liable to have a curative influence on chronic metritis and has recently been recommended by Dührssen for this purpose alone.

90. **Ultimate Results of Reimplantation of the Ovaries.**—Pankow relates the after-history of seven women treated for hemorrhages, dysmenorrhea or osteomalacia by reimplanting the ovaries at another point, two or three years ago. He gives the details of the cases and the histologic findings in some of the ovaries. In one case the ovaries were found functionally and anatomically normal more than three years after the operation. The results on the whole suggest that the ovaries contain two kinds of tissue, as has been demonstrated for the testicles—glandular tissue with an internal secretion, besides the follicular apparatus. He is confident that better results will be attained if it is possible to destroy the latter while leaving unimpaired the tissue in charge of the internal secretion. In two recent cases he has tried to realize this ideal. On account of excessive hemorrhages he removed the ovaries; slit them lengthwise; placed them in physiologic salt solution, and exposed them for ten minutes to a moderately soft Roentgen tube at 25 cm. distance, and then reimplanted them.

Gazzetta degli Ospedali e delle Cliniche, Milan.

August 2, XXIX, No. 92, pp. 969-984.

93 The Dorsal Veins in the Hand as Means of Individual Identification. (Le vene dorsali della mano come indice di identificazione personale.) A. Tamassia.

94 *Differentiation of Exudates from Transudates by Rivalta's Test. (Valore diagnostico della prova di Rivalta.) G. Romanelli.

95 Ocular Tuberculin Reaction. (Oftalmoreazione di Calmette.) A. Plessi and C. Tosatti.

96 Hypertrophy of Mammæ in Exophthalmic Goiter in Man of 52. (Ginecomastia primitiva e secondaria ad alterazioni del testicoli, tiroide, ipofisi ed organi genitali.) A. Cerioli.

94. See abstract 137 in THE JOURNAL, Aug. 22, 1908, page 718.

Policlinico, Rome.

August, XV, Medical Section No. 8, pp. 337-384.

97 Negative Results of Attempts to Induce Experimental Endocarditis with Bacterial Toxins. (Intorno all'esistenza di un'endocardite da tossine batteriche.) F. Fulci. Commenced in No. 7.

98 Leucocytes with Sudan-Staining Granules in Respiratory Affections, Especially Croupous Pneumonia. P. Pozilli.

99 Modification of Günzburg Reaction. (Reazione del Günzburg: osservazioni e modificazioni.) M. Barberio.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

TEXT-BOOK OF PHYSIOLOGIC CHEMISTRY. In Thirty Lectures. By Emil Abderhalden, O. Professor Für Physiologie Des Physiologischen Institute Der Tierärztlichen Hochschule Berlin und Universitäts-Professor. Translated by William T. Hall, Instructor in Chemistry, Massachusetts Institute of Technology, and George Defren. First Edition. Cloth. Pp. 722. Price, $5.00. New York: John Wiley & Sons, 1908.

SANATORIA FOR CONSUMPTION AND CERTAIN OTHER ASPECTS OF THE TUBERCULOSIS QUESTION. Supplement in Continuation of the Report of the Medical Officer for 1905-06, to the Thirty-fifth Annual Report of the Local Government Board, 1905-06. Paper. Pp. 670, with Illustrations. Price, $1.25. London: Darling & Son, 1908.

MANUAL OF PSYCHIATRY. By J. Rogues de Fursac, M.D., Formerly Chief of Clinic at the Medical Faculty of Paris. Translated by A. J. Rosanoff, M.D., Second Assistant Physician, Kings Park State Hospital, N. Y. Second Edition. Cloth. Pp. 406. Price, $2.50. New York: John Wiley Sons, 1908.

INDEX OF 1,180 POSTMORTEMS OF THE INSANE. State Hospital for the Insane, Norristown, Pa. By H. J. Sommer, Jr., M.D., Pathologist, Formerly Assistant Physician of the Institution. Cloth. Pp. 316. Norristown: Hospital Printing Office, 1908.

BLUTARMUT UND BLEICHSUCHT. Wesen, Ursachen und Bekämpfung. By Dr. Karl Bernold Martin, beit. Arzt des Sanatoriums Lorettoberg, Freiburg i. Br. Paper. Pp. 50. Munich: Verlag der Aerztlichen Rundschau (Otto Gmelin), 1908.

TWENTY-NINTH ANNUAL REPORT OF THE ST. ELIZABETH HOSPITAL, Dayton, Ohio. Under Charge of the Sisters of the Poor of St. Francis. For Year 1907. Paper. Pp. 36. Dayton: Press of the U. B. Publishing House, 1908.

DIE BEHANDLUNG DER STRAFFÄLLIGEN JUGEND. By Dr. Eugen Neter, Kinderarzt in Mannheim. Paper. Pp. 56. Munich: Verlag der Aerztlichen Rundschau (Otto Gmelin), 1908.

NATIONALIZATION OF THE SANITARY SERVICES. By Dr. J. A. Lopez del Valle, Local Chief Sanitary Officer of Havana. Paper. Pp. 127. Published for Free Distribution.

FIFTY-EIGHTH ANNUAL REPORT OF THE PASSAVANT HOSPITAL, Pittsburg, Pa. For the Year 1907. Paper. Pp. 30.

PITTSBURG HOSPITAL REPORT, Sisters of Charity. From Jan. 1, 1905, to Dec. 31, 1907. Paper. Pp. 62.